

CONTROL-M/Tape Conversion Guide



Supporting

CONTROL-M/Tape version 6.2.21

July 2007



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- search a database for issues similar to yours and possible solutions
- order or download product documentation
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Have the following information available so that Customer Support can begin working on your issue immediately:

- product information
 - product name
 - product version (release number)
 - license number and password (trial or permanent)
- operating system and environment information
 - machine type
 - operating system type, version, and service pack or other maintenance level such as PUT or PTF
 - system hardware configuration
 - serial numbers
 - related software (database, application, and communication) including type, version, and service pack or maintenance level
- sequence of events leading to the issue
- commands and options that you used
- messages received (and the time and date that you received them)
 - product error messages
 - messages from the operating system, such as file system full
 - messages from related software

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About This Guide

This guide contains the information necessary for conversion of tape management information at your site. It contains the following chapters:

Chapter 1—Introduction

Overview of the process of converting data from another tape management system to CONTROL-M/Tape format.

Chapter 2—Conversion from CA-1

Considerations for converting from CA-1 to CONTROL-M/Tape, followed by detailed conversion steps.

Chapter 3—Conversion from CA-TLMS

Considerations for converting from CA-TLMS to CONTROL-M/Tape, followed by detailed conversion steps.

Chapter 4—Conversion from CA-EPIC/MVS

Considerations for converting from CA-EPIC/MVS to CONTROL-M/Tape, followed by detailed conversion steps.

Chapter 5—Conversion from DFSMSrmm

Considerations for converting from DFSMSrmm to CONTROL-M/Tape, followed by detailed conversion steps.

Chapter 6—Conversion from MVS Catalog (For Sites With no Tape Management System)

Considerations for converting from MVS Catalog to CONTROL-M/Tape, followed by detailed conversion steps.

Conventions Used in This Guide

Notational conventions that may be used in this guide are explained below.

Standard Keyboard Keys

Keys that appear on the standard keyboard are identified in boldface, for example, **Enter**, **Shift**, **Ctrl+S** (a key combination), or **Ctrl S** (a key sequence).

WARNING



The commands, instructions, procedures, and syntax illustrated in this guide presume that the keyboards at your site are mapped in accordance with the EBCDIC character set. Certain special characters are referred to in this documentation, and you must ensure that your keyboard enables you to generate accurate EBCDIC hex codes. This is particularly true on keyboards that have been adapted to show local or national symbols. You should verify that

\$ is mapped to x'5B'

is mapped to x'7B'

@ is mapped to x'7C'

If you have any questions about whether your keyboard is properly mapped, contact your system administrator.

Preconfigured PFKeys

Many commands are preconfigured to specific keys or key combinations. This is particularly true with regard to numbered PF keys, or pairs of numbered PFKeys. For example, the END command is preconfigured to, and indicated as, **PF03/PF15**. To execute the END command, press either the **PF03** key or the **PF15** key.

Instructions to enter commands may include

- only the name of the command, such as, enter the END command
- only the PF keys, such as, press **PF03/PF15**
- or both, such as, press **PF03/PF15**, or enter the END command

Command Lines and Option Fields

Most screens contain a command line, which is primarily used to identify a single field where commands, or options, or both, are to be entered. These fields are usually designated COMMAND, but they are occasionally identified as COMMAND/OPT or COMMAND/OPTION.

Option field headings appear in many screens. These headings sometimes appear in the screen examples as OPTION, or OPT, or O.

Names of Commands, Fields, Files, Functions, Jobs, Libraries, Members, Missions, Options, Parameters, Reports, Subparameters, and Users

The names of commands, fields, functions, jobs, libraries, members, missions, options, parameters, reports, subparameters, users, and most files, are shown in standard UPPERCASE font.

User Entries

In situations where you are instructed to enter characters using the keyboard, the specific characters to be entered are shown in this **UPPERCASE BOLD** text, for example, type **EXITNAME**.

Syntax statements

In syntax, the following additional conventions apply:

- A vertical bar (|) separating items indicates that you must choose one item. In the following example, you would choose *a*, *b*, or *c*:

a | b | c
- An ellipsis (. . .) indicates that you can repeat the preceding item or items as many times as necessary.
- Square brackets ([]) around an item indicate that the item is optional. If square brackets ([]) are around a group of items, this indicates that the item is optional, and you may choose to implement any single item in the group. Square brackets can open ([) and close (]) on the same line of text, or may begin on one line of text and end, with the choices being stacked, one or more lines later.
- Braces ({ }) around a group of items indicates that the item is mandatory, and you must choose to implement a single item in the group. Braces can open ({) and close (}) on the same line of text, or may begin on one line of text and end, with the choices being stacked, one or more lines later.

Screen Characters

All syntax, operating system terms, and literal examples are presented in this typeface. This includes JCL calls, code examples, control statements, and system messages. Examples of this are:

- calls, such as

```
CALL 'CBLTDLI'
```

- code examples, such as

```
FOR TABLE owner.name USE option, . . . ;
```

- control statements, such as

```
//PRDSYSIN DD * USERLOAD PRD(2) PRINT
```

- system messages, both stand-alone, such as You are not logged on to database database_name, and those embedded in text, such as the message You are not logged on to database database_name, are displayed on the screen.

Variables

Variables are identified with *italic* text. Examples of this are:

- In syntax or message text, such as
Specify database *database_name*
- In regular text, such as
replace database *database_name1* with database *database_name2* for the current session
- In a version number, such as
EXTENDED BUFFER MANAGER for IMS 4.1.xx

Special elements

This book includes special elements called *notes* and *warnings*:

NOTE



Notes provide additional information about the current subject.

WARNING



Warnings alert you to situations that can cause problems, such as loss of data, if you do not follow instructions carefully.

Related Publications

CONTROL-M/Tape Implementation Guide

Detailed information about how to implement CONTROL-M/Tape at your site.

CONTROL-M/Tape User Guide

Comprehensive information about the functions, features, and operation of CONTROL-M/Tape.

INCONTROL for z/OS Administrator Guide

Information for system administrators about customizing and maintaining INCONTROL™ products.

INCONTROL for z/OS Installation Guide

Step by step guide to installing INCONTROL products using the INCONTROL™ Customization and Installation Engine (ICE) application.

INCONTROL for z/OS Messages Manual

Comprehensive listing and explanation of all INCONTROL messages.

INCONTROL for z/OS Security Guide

Step by step guides to implementing security in INCONTROL products using the ICE application.

INCONTROL for z/OS Utilities Guide

Describes utilities designed to perform specific administrative tasks that are available to INCONTROL products.

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Overview

Conversion is the process by which information stored in your existing tape management system is translated into a format usable by CONTROL-M/Tape. The conversion process is normally performed several times during CONTROL-M/Tape implementation.

Programs supplied with CONTROL-M/Tape enable you to perform many of the necessary conversion steps automatically.

How is this Book Organized?

This book contains all the information that you need to convert your tape management information to CONTROL-M/Tape format.

This chapter contains an introduction to various aspects of conversion to CONTROL-M/Tape.

The conversion process can vary, depending on the tape management system that creates the data that is being converted. Chapters 2 through 6 of this book each describe conversion of data from a specific tape management system.

Conversion to CONTROL-M/Tape is described for:

- CA-1
- CA-TLMS
- DFSMSrmm
- CA-EPIC/MVS
- Sites with no tape management system (MVS Catalog)

This chapter describes general issues relevant to all CONTROL-M/Tape conversions. Read this chapter before proceeding with the conversion steps for your current tape management system.

Conversion from specific tape management systems is described in the remaining chapters of this guide.

What is Conversion?

The conversion process consists primarily of the following tasks:

- **Convert Database** – Convert the existing tape management system’s database to the CONTROL-M/Tape Media Database. This process must be performed before testing begins, and is also necessary when changing the CONTROL-M/Tape mode of operation, or if large discrepancies between the two databases have been detected.
- **Convert and/or Adapt Definitions** – Convert rules and definitions and policies (depending on the tape management system at your site) from the existing tape management system to CONTROL-M/Tape definitions. Converted definitions can be revised in CONTROL-M/Tape as necessary.

NOTE



The term “definitions” as used in this book refers to rule, vault and pool definitions.

Basic Conversion Steps

The following steps are normally performed as part of the conversion process:

- 1 Modify the parameters of the conversion programs.
- 2 Compile and link the conversion programs with the modified parameters.
- 3 Stop tape processing.
- 4 Format the CONTROL-M/Tape Media Database.

NOTE



Formatting the Media Database overwrites all information previously stored in it.

- 5 Run the database analysis utilities of your existing tape management system to find and correct database errors and discrepancies (for example, broken chains, dead volumes). All errors must be corrected before conversion to CONTROL-M/Tape. Errors that remain in the original database are propagated into the CONTROL-M/Tape Media Database.

- 6** Produce reports from the existing tape management system. These reports are used as input for creation of the Media Database and rule, vault, and pool definitions for CONTROL-M/Tape.
- 7** Run the conversion programs compiled in Step 2. These programs:
 - Convert information in the existing tape management system's reports into data for the CONTROL-M/Tape Media Database.
 - Load the data into the CONTROL-M/Tape Media Database.
 - Create the CONTROL-M/Tape Media Database index.
- 8** Create retention rules by converting the existing tape management system definitions and policies into CONTROL-M/Tape rules.
- 9** Convert the existing tape management system vault patterns into CONTROL-M/Tape rules.
- 10** Define CONTROL-M/Tape rules that identify which datasets are controlled by an External Data Manager.
- 11** Adjust the CONTROL-M/Tape rule list member so that it points to the new rules created in the above steps.
- 12** Define scratch pools to CONTROL-M/Tape by using the Pool Definition screen (TP). If the existing tape management system uses scratch pools, those pools must be defined as CONTROL-M/Tape scratch pools in this step.
- 13** Define vaults to CONTROL-M/Tape by using the Vault Definition screen (TV).
- 14** Run CONTROL-M/Tape vault management utility CTTVTM in a special conversion mode that adjusts the Media Database to the current vault status of your tapes.
- 15** Run CONTROL-M/Tape retention management utility CTTRTM in a special conversion mode that adjusts the retention of tapes in the Media Database to match those of the existing tape management system.
- 16** Check the integrity of the Media Database. This step may reveal erroneous data converted from the existing tape management system. Erroneous data in the Media Database interferes with CONTROL-M/Tape testing. The integrity of the Media Database must be assured before you start using CONTROL-M/Tape.
- 17** Resume tape activity.

- 18 Run CONTROL-M/Tape Stacking Statistics utility (CTTSTK). If you do not plan to activate Dynamic Dataset Stacking at this time, you may choose to delay execution of this utility until a later stage of the implementation process.
- 19 Adjust the CONTROL-M/Tape New Day procedure (CTTDAY) to the requirements of your environment.

Automatic Conversion

Conversion of data from certain tape management systems is now performed by a series of online screens. During automatic conversion, you are prompted for information (for example, input dataset names) and given the option to perform or not to perform certain steps (for example, reformatting the Media Database). Many steps that were performed manually in previous versions are performed automatically by the conversion tool.

Automatic conversion is currently supported for CA-1 only.

When Should I Perform Conversion?

Conversion of tape management information is performed when implementing CONTROL-M/Tape at a site that was previously managed by a different tape management system or when converting information from the MVS catalog.

The actual conversion process is performed at the following stages of CONTROL-M/Tape implementation:

- At the very beginning of CONTROL-M/Tape implementation.
- Before CONTROL-M/Tape is activated in Global Phased mode.
- Before CONTROL-M/Tape is activated in Global Production mode.

NOTE



Additional conversions may be necessary to implement major changes that are made to definitions in the tape management system being replaced.

For more information about when conversion is performed, see the *CONTROL-M/Tape Implementation Guide*.

Reconversion of Tape Management Data

When CONTROL-M/Tape is running in Global Test mode or Global Phased mode parallel to another tape management system, the databases of CONTROL-M/Tape and the other tape management system must be synchronized. To ensure that the databases are synchronized, run CONTROL-M/Tape's New Day procedure whenever the retention and vaulting utilities of the existing tape management system are run.

If discrepancies are found, analyze them and correct CONTROL-M/Tape definitions and/or parameters as necessary. If many discrepancies are detected it may be necessary to reconvert the data from the other tape management system.

A reconversion of tape management data is also recommended whenever the CONTROL-M/Tape global operation mode is changed.

CONTROL-M/Tape does not require any modifications to the existing tape management system at your site. Normally, definitions in the existing tape management system should not be changed during the changeover period to CONTROL-M/Tape. However, if any definitions for the existing tape management system are changed, ensure that all modifications are also incorporated into the CONTROL-M/Tape rule, vault, and pool definitions.

Cross-Reference of Tape Management Terms

For your convenience, the table below lists primary components of tape management systems that can be converted to CONTROL-M/Tape, and the parallel features in CONTROL-M/Tape.

Table 1 Cross-Reference of Tape Management Terms (part 1 of 2)

Term	CONTROL-M/Tape	CA-1	CA-TLMS	DF/SMSrmm	EPICMVS
Database	MDB – Media Database	TMC – Tape Management Catalog	VMF – Volume Master File	Storage Management Library CDS	Dataset Name (DSN) Catalog
Dataset Record	Dataset Record (DDS)	DSNB (Dataset Name Block)	Dataset Name Record	D-record O-Record	Detail Record
Volume Record	Volume Record (DVL)	Volume Record	Volume Record	L-record E-record	
Retention File	Rule Definitions – RULES Library (DO RETENTION)	RDS Retention Data Set	RMF Retention Master File	VRS	Master Record (EDD) EPICOPTS (OPTION SELECT)
Vault Pattern	Rule Definitions (DO VAULT)	VPD Vault Pattern Definitions	RMF	VRS	Master Record (EDD) EPICOPTS (OPTION SELECT)
Vault Definition	Member \$\$VAULT in the CONTROL-M/Tape PARM library Updated through the Vault Definition screen (TV)	VPD	RMF	VRS	Vault Management System (VMS) Catalog
Storage Location (Vault)	Vault	Vault	Location	Storage Location	Vault
Vault (Location) Management Utility	CTTVTM	Vault Management – Batch Processing	TRS Tape Retention System	Storage Location Management (EDGHSKP)	Vault Movement Programs
Retention Management Utility	CTTRTM	Retention Management – Batch Processing	TRS – Tape Retention System	Retention Management (EDGHSKP)	SCRATCH Process Utility

Table 1 Cross-Reference of Tape Management Terms (part 2 of 2)

Term	CONTROL-M/Tape	CA-1	CA-TLMS	DF/SMSrmm	EPICMVS
Pool Management	N/A	N/A	N/A	Tape Pool Management	Tape Pool Management
Pool Type	N/A	N/A	N/A	Rack Pool	N/A
Pool Assignment	Rule Definitions (DO POOL)	SCRATCH assignment rules Member U01NSMxx in CA1.PARMLIB Or TMONSMxx	TRS		EPICOPTS (OPTION SELECT) EDD
Pool Definition	Member \$\$POOL in the CONTROL-M/Tape PARM library Updated through the Pool Definition screen (TP)	Member U01SCRxx in TMUSCRxx in CA1.PARMLIB TMUSCRxx TMUSCRxx	Parameter TLMSIPD in member POOLID	Scratch Pool	EPICOPTS (TAPEPOOL)
Rules	Rules	Policies	Policies	Policies	N/A
Rule Location	Rule Definitions-RULES Library	RDS	RMF	Vital Record Specifications	EPICOPTS (OPTION SELECT)

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Overview

This chapter describes the CA-1 to CONTROL-M/Tape conversion process. A brief description of the differences between CA-1 and CONTROL-M/Tape is followed by detailed conversion steps.

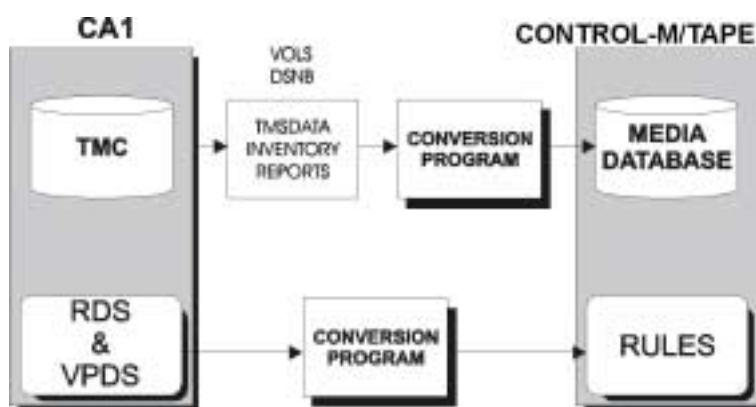
CA-1 stores volume and dataset information in the Tape Management Catalog (TMC). The TMC contains volume information in the TMC Volume Record, and dataset information in the Data Set Name Block (DSNB). CA-1 uses a Retention Dataset (RDS) to define customized retention policies and a Vault Pattern Description Dataset (VPD) to manage volume movement between the library and other storage locations.

Retention management and vault management are performed during TMC batch processing. CA-1 also performs Scratch Pool management based on user groups and user applications.

CONTROL-M/Tape volume and dataset information is stored in the CONTROL-M/Tape Media Database (MDB). When a dataset is created, CONTROL-M/Tape records the dataset attributes in the relevant dataset record in the Media Database and updates the appropriate volume record. Dataset access is tracked in both records. Each time a dataset is accessed or created CONTROL-M/Tape searches for user-defined rules that indicate action that must be taken. As CONTROL-M/Tape rules are processed, changes to media management attributes (e.g., vault patterns and retention periods) are updated in the Media Database.

The following diagram indicates how the major CA-1 components are converted to CONTROL-M/Tape format.

Figure 1 Conversion of CA-1 Components to CONTROL-M/Tape Format



TMC Cleanup

To avoid propagating errors to the Media Database, use CA-1 utility TMSPTRS to verify the integrity of the TMC database. Correct any problems that are detected by the utility.

Vaulting information and retention criteria must be updated in the TMC records before conversion. Run CA-1 batch processing utilities TMSEXPDT, TMSVMEDT, TMSVMUPD, and TMSVMVLT to update the TMC records.

Volume Ranges

CONTROL-M/Tape requires definition of a range of volume serial numbers (volsers) for each media type before it generates volume records. The necessary volume ranges are defined to CONTROL-M/Tape during the automatic conversion step, described on [page 34](#).

Volumes in the TMC database that are not within the ranges specified to CONTROL-M/Tape are not added to the CONTROL-M/Tape Media Database. Make an inventory of all active volume ranges in your data center. Use this inventory as a reference when specifying volume ranges to CONTROL-M/Tape during conversion.

Retention, Pool, EDM, and Vault Definitions

The conversion tool creates members containing CONTROL-M/Tape rules generated from:

- CA-1 Retention Policies (RDS)
- CA-1 Vault Patterns (VPD)
- CA-1 Scratch Assignment rules
- CA-1 EDM Assignments

All CONTROL-M/Tape rules have the same format and use the same set of parameters to define actions and other criteria. After CONTROL-M/Tape implementation has been completed and CONTROL-M/Tape is running in production mode, rules created during conversion can be combined so that retention, vaulting, and pool specifications are described in the same rules.

Retention Management

The conversion tool recognizes and automatically converts CA-1 retention Policies to CONTROL-M/Tape rule definitions. The name of each CONTROL-M/Tape rule definition generated from CA-1 retention policies begins with a prefix specified during conversion.

Vault Management

The conversion tool recognizes and automatically converts CA-1 Vaulting Patterns (VPD) to CONTROL-M/Tape rule definitions. The name of each CONTROL-M/Tape rule definition generated from CA-1 Vaulting Patterns begins with a prefix specified during conversion.

All vaults defined in CA-1 VPD are automatically defined to CONTROL-M/Tape by the conversion tool.

Pool Management

CA-1 allows ranges of tape volumes in a tape library to be defined as a tape pool (e.g., for a specific group of users or an application). Scratch requests can be limited to tapes in a specific pool according to job name and/or dataset name.

The conversion tool automatically converts CA-1 Scratch Assignment rules to CONTROL-M/Tape rule definitions identified with a prefix specified during conversion.

All pools defined in CA-1 member TMONSMxx are automatically converted to CONTROL-M/Tape by the conversion tool.

External Data Manager

CONTROL-M/Tape can track tape volumes that are managed by an External Data Manager (EDM) such as DFSMSHsm or CA-Disk (formerly DMS/OS). If CA-1 interfaces with an EDM at your site, the conversion tool analyses the CA-1 EDM assignments and automatically creates appropriate CONTROL-M/Tape rules to identify the relevant datasets to CONTROL-M/Tape as EDM-controlled.

Tape Management Utilities

Various utilities are used by CA-1 and CONTROL-M/Tape to perform tape management functions. CA-1 utilities and the equivalent utilities in CONTROL-M/Tape are listed below:

Table 2 Tape Management Utilities

CA-1	DESCRIPTION	CONTROL-M/Tape
TMSINIT	Initialization Utility.	CTTINIT
TMSPTRS	Database analysis utility. Used for error detection (e.g., in multi-volume and multi-dataset chains).	CTTIDB
TMSEXPDT TMSCTLG TMSCYCLE TMSCLEAN	Retention management utility.	CTTRTM
TMSCOPY	Backup utility.	Any backup utility
TMSVMEDT TMSVMVLT TMSVMUPD	Vault management utility.	CTTVTM
CA-EARL	Report utility.	CTTRPT

For a detailed description of all CONTROL-M/Tape utilities (except CTTINIT), see the CONTROL-M/Tape chapter of the *INCONTROL for z/OS Utilities Guide*. For further information about utility CTTINIT, see the CONTROL-M/Tape chapter of the *INCONTROL for z/OS Administrator Guide*.

CA-1 Conversion Process

Conversion from CA-1 to CONTROL-M/Tape is performed by a series of automatic steps through the INCONTROL Installation and Customization Engine (ICE). If you are not yet familiar with ICE, it is recommended that you review the IOA concepts and components chapter of the *INCONTROL for z/OS Installation Guide*.

NOTE



CONTROL-M/Tape must be installed before the conversion process is performed.

Reconversion

Conversion is normally performed several times during implementation of CONTROL-M/Tape at a new site. If the current conversion is not the first conversion at your site, many of the conversion steps described in this chapter, can be skipped.

For more information, see [“Step 2: Automated Conversion Steps” on page 34](#).

Entering the Online Conversion Screens

Use the following steps to begin conversion from CA-1 to CONTROL-M/Tape.

- 1 Enter ICE as described in the *INCONTROL for z/OS Installation Guide*.
- 2 Type **CTT** in the product field, select “INSTALL CTx” (ICE option 3) from the INCONTROL installation menu, and press **Enter**. The CONTROL-M/Tape installation menu is displayed.

1. Choose major step 13 “Automated Conversion from CA-1.” The following screen is displayed:

----- Minor Steps Selection -----				
Environment: IOA610 Product: CTT				
Major Step: 13 Automated Conversion from CA-1				
Sel values: S Select step C Mark step as completed R Reset status				
B Browse Step X Mark step as excluded ? Help				
PF7/PF8 To scroll through all Steps				

Sel	Step	Status	Type	Opt Description
==	====	=====	=====	=====
.	1		Extrnl	Prepare CA-1 TMC for Conversion
.	2	*	Process	Start the Automated Conversion
.	3		Job	Apply Vault Rules
.	4		Job	Apply Retention Rules
.	5		Job	Verify Media Database Integrity
.	6		Job	Y Collect Statistics for Stacking
-----> End of Minor Steps <-----				

Step 1: Prepare CA-1 TMC for Conversion

CONTROL-M/Tape builds the Media Database from volume and DSNB records in the TMC. Before conversion, the TMC must be free of errors and data discrepancies such as chaining problems and dead volume entries.

If errors remain in the TMC, they are carried over to the CONTROL-M/Tape Media Database during conversion.

Use the CA-1 utilities described in [Table 3 on page 34](#) to detect and verify the integrity of CA-1 tape library data.

Table 3 CA-1 Utilities for Detecting and Verifying the Integrity of CA-1 Tape Library Data

Utility	Description
TMSPTRS	Detects invalid internal CA-1 multi-volume and multi-dataset chains, or errors in the free chain of unused DSNBs. Do not run this utility at the same time as other CA-1 batch utilities (e.g., TMSCLEAN or TMSEXPDT). If TMSPTRS ends with a non-zero condition code, errors are present in the TMC. Utility TMSPTRS produces the Invalid Pointers Report, that lists all volume and/or DSNB records that are in error.
TMSEXPDT, TMSVMEDT, TMSVMUPD, TMSVMYLTTMSEXPDT, TMSVMEDT, TMSVMUPD, TMSVMYLT	These utilities detect inconsistencies in retention and vaulting information. Correct control statements in the RDS according to the reports that are generated by these utilities, and run utility TMSEXPDT to reset the expiration dates.

NOTE

When converting to PHASED or PROD modes, you must run the daily retention and vault processing of CA1 before running the conversion. You must also run this CA1 processing before running a TEST mode conversion.

Step 2: Automated Conversion Steps

This step is comprised of a series of screens that prompt you for information and guide you through most of the CA-1 to CONTROL-M/Tape conversion process.

Navigation

You can use the following PFKeys in all screens in the automatic conversion steps:

Table 4 PFKeys for Automatic Conversion Step Navigation

PFKey	Description
ENTER	Proceed to the next panel.
PF03/PF15	Return to the previous conversion step.
PF04/PF16	Exit the current conversion and save conversion information. When conversion is restarted, you are returned to the current conversion step.

Automatic Conversion Tasks

Perform the automatic conversion tasks as described in the following subtopics:

- 1 “Collect Information About your CA-1 Configuration” on page 36
- 2 “Modify Conversion Parameters” on page 36
- 3 “Compile and Link Conversion Programs” on page 40
- 4 “Adjust CONTROL-M/Tape Installation Parameters” on page 40
- 5 “Define Volume Ranges” on page 42
- 6 “Convert Vault Definitions and Pool Definitions” on page 43
- 7 “Convert EDM, Pool, Vault and Retention Rules” on page 43
- 8 “Update the CONTROL-M/Tape Rule Table List Member” on page 44
- 9 “Stop Tape Processing” on page 45
- 10 “Run CA-1 Daily Processing” on page 45
- 11 “Extract Volume and Dataset Information from CA-1 (Produce CA-1 Report)” on page 45
- 12 “Format the CONTROL-M/Tape Media Database” on page 46
- 13 “Submit the Conversion Job” on page 47



NOTE

If you are currently performing a reconversion (that is, this is not the first conversion at your site), many of these tasks may not be necessary. Considerations for determining whether a task must be performed are listed in the description of each task.

Collect Information About your CA-1 Configuration

Use this automatic conversion screen to specify the version of CA-1 in use at your site. The CONTROL-M/Tape conversion tool currently supports CA-1 versions 4.9 or later.

- 1 Enter the version number and press **Enter**.

The following screen is displayed:

Figure 2 Conversion to CONTROL-M/Tape from CA-1 Screen

```
----- Conversion to CONTROL-M/Tape from CA-1 -----
COMMAND ==>

Enter the following CA-1 datasets/libraries:

CA-1 TMC dataset          ==> CA1.TMC

CA-1 LOAD library        ==> CA1.LOAD

CA-1 PPOPTION library    ==> CA1.PPOPTION

Enter your RDS and/or VPD dataset names (if in use at your site):

CA-1 RDS dataset         ==> CA1.RDS

CA-1 VPD dataset         ==> CA1.VPD

Enter PPOPTION member names:

Parameters member        (TMOOPTxx) ==> TMOOPT00
Pool names member        (TMOSCRxx) ==> TMOSCR00 (Optional)
Pool assignments member  (TMONSMxx) ==> TMONSM00 (Optional)
EDM assignments member   (TMOEDMxx) ==>                (Optional)
```

- 2 Use this screen to specify the names of CA-1 libraries, members, and datasets that contain information to be converted to CONTROL-M/Tape format.

NOTE



CA-1 PPOPTION members may be prefixed by U01 or TMO at your site, depending on the version of CA-1 from which you are converting.

- 3 Press **Enter** to display the next screen.

Modify Conversion Parameters

Before running the conversion jobs, several conversion parameters may require modification to match your site standards. This screen asks whether you want to modify the default conversion parameters. If you enter Yes, the following screen is displayed:

Figure 3 Conversion to CONTROL-M/Tape Default Parameters Screen

```

----- Conversion to CONTROL-M/Tape - Default Parameters -----
COMMAND ===>

Vault Rule Prefix      ===> VMS
Retention Rule Prefix  ===> RET
Pool Rule Prefix       ===> POL
EDM Rule Prefix        ===> EDM
Rule Group Name        ===> CA1-RULES
Group User-ID          ===> CTTCONV
Rule Priority          ===> 00
Continue Search Indicator ===> Y      (Y/N)
Dataset Cycle Prefix   ===> N      (Y/N)
Rule Mode Indication   ===> P      (P-Prod/T-Test)
Rule Description:      ===> CONVERTED FROM CA1 RDS/VPDS CONTROL CARDS

```

The default values for these parameters match standard CA-1 installation parameters. Modify these values only if it is necessary for compatibility with the conventions of your site (for example, rule naming conventions).

[Table 5](#) describes the fields in this screen.

Table 5 Fields of the Conversion to CONTROL-M/Tape from CA-1 Screen (part 1 of 4)

Field	Description
Vault Rule Prefix	Prefix for CONTROL-M/Tape vaulting rules generated from the CA-1 Vault Pattern Description dataset (VPD). The name of each CONTROL-M/Tape vaulting rule is comprised of this prefix and a sequential number. Up to three characters can be specified for this field. Default: VMS.
Retention Rule Prefix	Prefix for CONTROL-M/Tape retention rules generated from the CA-1 Retention Dataset (RDS). The name of each CONTROL-M/Tape retention rule is comprised of this prefix and a sequential number. Up to three characters can be specified for this field. Default: RET.

Table 5 Fields of the Conversion to CONTROL-M/Tape from CA-1 Screen (part 2 of 4)

Field	Description
Pool Rule Prefix	Prefix for CONTROL-M/Tape pool rules generated from the CA-1 Scratch Assignment Rule member (TMONSMxx). The name of each CONTROL-M/Tape rule is comprised of this prefix and a sequential number. Up to three characters can be specified for this field. Default: POL.
EDM Rule Prefix	Prefix for CONTROL-M/Tape EDM rules generated from the CA-1 EDM Assignments (member TMOEDMxx). The name of each CONTROL-M/Tape rule is comprised of this prefix and a sequential number. Up to three characters can be specified for this field. Default: EDM
Rule Group Name	Group name for CONTROL-M/Tape rules created during conversion. A Group name is a descriptive name for a group of rules. Up to twenty characters can be specified for this field. Default: CA1-RULES
Group User ID	User ID (OWNER) for CONTROL-M/Tape rules generated during conversion. The OWNER field is mandatory for all rules and can be useful during implementation of CONTROL-M/Tape security. Up to eight characters can be specified for this field. Default: CTTCONV
Rule Priority	Rule sequence priority. The order in which the rules are scanned is very important for rule processing. Sequence priority controls the order in which rules are scanned. When CONTROL-M/Tape searches for a rule, the first rule that matches the selection criteria is activated. Rule priority is determined in ascending order where blank < A < Z < 0 < 9. This field contains two characters. For details about order of rule processing, see the CA-EPIC/MVS conversion chapter of the <i>CONTROL-M/Tape User Guide</i> . Default: 00 (medium priority)

Table 5 Fields of the Conversion to CONTROL-M/Tape from CA-1 Screen (part 3 of 4)

Field	Description
Continue Search Indicator	<p>Value for the CONTROL-M/Tape CONTINUE SEARCH field. This field determines whether or not CONTROL-M/Tape searches for additional rules that match a dataset currently being processed. Specify Y (Yes) for this parameter to ensure compatibility with CA-1. Valid values are:</p> <ul style="list-style-type: none"> ■ Y – Continue search. Default. ■ N – Do not continue search. <p>Note: The conversion tool creates separate rules for retention criteria, vault patterns, and pool assignments. Rule definitions of all three types may be created for a single dataset.</p> <p>Rules are processed according to priority (see “Rule Priority” above), or according to the order in which they were loaded. During CONTROL-M/Tape initialization (procedure CTTINIT), rule tables are loaded into memory according to their order in the RULLIST member. The Continue Search indicator must be set to Y to ensure that all rules for a dataset are applied. When CONTROL-M/Tape implementation is complete (i.e., CONTROL-M/Tape is running in Global Production mode), rule definitions can be merged for each dataset or merged into generic rules (using masks) to optimize CONTROL-M/Tape performance.</p>
Dataset Cycle Prefix	<p>Indicates whether or not dataset names specified for datasets with CYCLE type retention must be used as prefixes that identify different generations (cycles) of the dataset. This parameter indicates the value for subparameter PREFIX in DO RETENTION statements of CONTROL-M/Tape rules created by the conversion. It performs the same function for retention cycle control that CA-1’s SEPDSN keyword performs for vault control. For more information, see “DO RETENTION” in the CA-TLMS chapter of the <i>CONTROL-M/Tape User Guide</i>. Valid values are:</p> <ul style="list-style-type: none"> ■ Y – Consider datasets with the same prefix as different generations of the same dataset. ■ N – Ignore specified prefixes, and identify each dataset by its full name. Default. This value acts in the same way as CA-1 keyword SEPDSN.

Table 5 Fields of the Conversion to CONTROL-M/Tape from CA-1 Screen (part 4 of 4)

Field	Description
Rule Mode Indication	<p>Rule specific operation mode for rules created by the conversion. When a rule is executed in Test mode, information is recorded in the Media Database but CONTROL-M/Tape does not perform any actions.</p> <p>If TEST is specified for CONTROL-M/Tape installation parameter MODE, all rules are run in test mode. Global Test mode overrides any rule specific production mode. It is recommended not to modify the default value (P) for “Rule Mode Indication” in this screen. Valid values are:</p> <ul style="list-style-type: none"> ■ P – Production mode. Default. ■ T – Test mode.
Rule Description	<p>A free-text rule description to be inserted in the DESCRIPTION field of each rule created by the conversion tool. This field can contain a maximum of 61 characters.</p> <p>Default: CONVERTED FROM CA-1 CONTROL CARDS.</p>

Compile and Link Conversion Programs

The next step in the automatic conversion runs the CONVCASM job that compiles and links all the conversion programs.

Confirm that all steps of the job ended with a condition code of 0, and press **Enter**.

Adjust CONTROL-M/Tape Installation Parameters

CONTROL-M/Tape checks the values specified for CA-1 parameters in the TMOOPTxx member, and suggests values for CONTROL-M/Tape installation parameters that are consistent with the CA-1 parameters at your site.

Figure 4 Conversion to CONTROL-M/Tape Adjust CTTPARM Screen

```

----- Conversion to CONTROL-M/Tape - Adjust CTTPARM -----
COMMAND ==>

          Current      Suggested
          Val ue      Val ue
          -----
EXPDTYPE : CA1          CA1
DEFEXPDT : 0            CATALOG      (IMPLEMENTATION BY A DEFAULT RULE)
DEFABEND : 0            LDATE/003    (IMPLEMENTATION BY A DEFAULT RULE)
OVERJCL  : Y            Y
EXPDTDDN : TMNOKEY      TMNOKEY
CYCLECNT : JOB          JOBDAT E
RTNTYPE  : (VOL, GROUP) (VOL, GROUP)
RTNUPD   : CRE          CRE
VLTBYDS1 : Y            Y
GRACECAT : 0            101
GRACECYC : 0            102
EXPCAT   : Y            Y

          Accept suggested values ==>          (Yes/No)

```

The Current Value column indicates the current values of these parameters in member CTTPARM. The Suggested Value column indicates the values recommended by the conversion tool (based on the settings for CA-1 parameters at your site).

NOTE



IMPLEMENTATION BY A DEFAULT RULE indicates that the value specified for the CA-1 parameter is implemented in CONTROL-M/Tape by an automatically defined rule that performs the same function as the parameter value.

This screen enables you to modify the CONTROL-M/Tape installation parameters that are relevant to the conversion process. Certain other CONTROL-M/Tape installation parameters may also need to be modified, for example, when converting before activation of CONTROL-M/Tape in a new global operation mode. These parameters are described in the relevant chapters of the *CONTROL-M/Tape Implementation Guide*, and in the CONTROL-M/Tape chapter of the *INCONTROL for z/OS Installation Guide*.

Define Volume Ranges

1 Specify the ranges of volumes used at your site in the following screen:

Figure 5 Conversion to CONTROL-M/Tape – Define Volume Ranges Screen

----- Conversion to CONTROL-M/Tape - Define Volume Ranges -----

Define the volume ranges to be converted and assign the proper MEDIA type and VENDOR name for each volume range.
Only the ranges defined here will be converted.

Type YES to continue ==>

Valid line options: I Insert D Delete

Opt	From Volume	To Volume	Media Type	Vendor
	AAAAAA	BBBBBB	CART	STK
	CCCCCC	DDDDDD	3490	MEMOREX
	000000	111111	TAPE	IBM

-----> End of Volume Ranges <-----

2 Specify the following information for each volume range:

Table 6 Volume Range Fields

Field	Description
From Volume	First volume serial number in the range.
To Volume	Last volume serial number in the range.
Media Type	Volume media type.
Vendor	Vendor of the media (Optional).

3 When all volume ranges are specified, type YES in the field in the top portion of the screen and press **Enter**.

NOTE



If a volume in the CA-1 TMC is not within the ranges specified to CONTROL-M/Tape, it is not added to the Media Database.

Convert Vault Definitions and Pool Definitions

Vault and pool definitions are converted automatically according to CA-1 definitions. A series of screens is displayed to guide you through this process or, optionally, to allow you to skip these steps (for example, if this is not the first conversion at your site).

■ Vault Definitions

CA-1 vault names are listed in the Vault Name Control Statements (VAULT) at the beginning of the CA-1 VPD. CONTROL-M/Tape vault definitions are automatically created according to these control statements, and are stored in member \$\$VAULT in the CONTROL-M/Tape PARM library.

Before automatic vault definition is performed, you are asked to specify the maximum number of volumes that a converted vault can contain. The value that you specify is applied to all converted vault definitions.

The CA-1 autodefined vaults LIB and LIBR are automatically defined by the conversion tool (even if not specified by the user).

For more information about vault definition in CONTROL-M/Tape, see the online facilities chapter of the *CONTROL-M/Tape User Guide*.

■ Pool Definitions

CA-1 pool definitions are listed in the U01SCRxx member of your CA1.PARM library for CA-1 versions 4.x and 5.0, and in the TMOSCRxx member of your CA1.PPOPTION library for CA-1 version 5.1 or later.

CONTROL-M/Tape pool definitions are automatically created according to the information in these members, and are stored in the \$\$POOL member of the CONTROL-M/Tape PARM library.

For more information about CONTROL-M/Tape pool definition, see the online facilities chapter of the *CONTROL-M/Tape User Guide*.

Convert EDM, Pool, Vault and Retention Rules

The conversion tool automatically converts CA-1 RDS, VPD, EDM definitions and U01NSMxx/TMONSMxx members into CONTROL-M/Tape rules. Conversion screens prompt you for names for members that will contain the rule tables with CONTROL-M/Tape rules for management of EDM-controlled datasets, pools, vaults, and retention.



NOTE

If this is not the first conversion at your site, existing rules at your site may be overwritten by the rule conversion. Rule conversion is only necessary during the first conversion from CA-1, or if modifications were made to CA-1 rules since the previous conversion.

If you still want to recreate CONTROL-M/Tape rules, make sure that CONTROL-M/Tape rules that were manually created (to ensure that CONTROL-M/Tape is functioning in parallel to CA-1) are in a rule table that is separate (that is, has a different name) from the rule tables that are created by the conversion tool.

- CA-1 EDM assignments (in U01NOPTxx/TMOEDMxx members) are converted to CONTROL-M/Tape rules that identify datasets as EDM-controlled (by using DO RETENTION=EDM statements). For more information about CONTROL-M/Tape interfaces to EDMs, see the external data managers chapter of the *CONTROL-M/Tape Implementation Guide*.
- CA-1 Retention Dataset (RDS) definitions are converted to CONTROL-M/Tape rules that control dataset retention.
- CA-1 Vault Pattern Definition dataset (VPD) definitions are converted to CONTROL-M/Tape rules that control vaulting of volumes at your site.
- CA-1 Scratch Assignment Rules (in U01NSMxx/TMONSMxx members) are converted to CONTROL-M/Tape rules that determine the pools that are to be used for which datasets.

NOTE



If the RDS and VPD do not exist and member U01NSMxx/TMONSMxx or U01NOPTxx/TMOEDMxx members are not present in the CA-1.PARMLIB/CA1.PPOPTION library, the relevant steps are skipped by the automatic conversion tool.

Update the CONTROL-M/Tape Rule Table List Member

The Rule Definition tables created during automatic conversion are loaded by CONTROL-M/Tape only if they are specified in the RULLIST member of the CONTROL-M/Tape PARM library, which is the rule list that is specified in procedure CTTINIT-default. Each line in the RULLIST member describes a Rule Definition table.

The automatic conversion tool enables you to indicate whether it must update the Rule list. Normally the rule list should be updated. However, if you only intend to load specific rules from the automatically generated tables, you may choose not to update the rule list at this time.



WARNING

If the rule list is automatically updated at this time, and a rule table already exists with the name of one of the new rule tables, the new rule table overrides the existing rule table.

Stop Tape Processing

- 1 Stop all tape processing.
- 2 If CONTROL-M/Tape is active, bring it down by the following command:

```
S CTTI NI T, PARM=' MODE=TERM'
```

- 3 You must also bring down CA-1 at this time.



NOTE

If CA-1 is not brought down at this time, information about datasets processed after production of the CA-1 reports (in the next step) are not incorporated into the CONTROL-M/Tape Media Database that is being produced by the conversion tool.

Run CA-1 Daily Processing

Before running the conversion, run the daily retention and vaulting processing for CA-1. This is necessary to convert to PHASED or PROD modes. This is also recommended when you convert to TEST mode.

Extract Volume and Dataset Information from CA-1 (Produce CA-1 Report)

The conversion tool now generates sequential datasets from CA-1 TMC Volume records and dataset name block (DSNB) records. CONTROL-M/Tape uses these sequential datasets to build the Media Database.



NOTE

If a CA-1 report was already produced with this information, you are given the option of using the old report. (This is not recommended, and should only be done for testing purposes, or during an immediate restart following an abend.)

The following dataset names (specified at the beginning of the automatic conversion) are used to generate the report:

- CA-1 TMC dataset name
- CA-1 LOAD library name

Format the CONTROL-M/Tape Media Database

The next automatic step formats or reallocates the CONTROL-M/Tape Media Database. If the Media Database already exists (for example, due to a previous conversion), it must be reformatted to replace old data with up-to-date information about datasets and volumes at your site.

NOTE

All information currently in the Media Database is erased during the reformat process.



The following screen is displayed:

Figure 6 Conversion to CONTROL-M/Tape – MDB Size Screen

```

----- Conversion to CONTROL-M/Tape - MDB Size -----
COMMAND ==>

The following information (taken from the report) describes your
current tape library:

    Number of removable volumes at the site ==> 1953
    Number of datasets at the site          ==> 2302
    Average number of datasets per volume   ==> 2

The CONTROL-M/Tape Media Database was allocated for the following
amount of information:

    Number of removable volumes at the site ==> 2000
    Average number of datasets per volume   ==> 5

    Would you like to Reallocate your MDB ==>          (Yes/No)

```

The statistics in the upper part of the screen indicate information gathered from the CA-1 report (produced in the previous step). The numbers in the lower part of the screen indicate the Media Database size that was specified during CONTROL-M/Tape installation.

You are given the option of allocating a larger Media Database before reformatting it. If the statistics gathered from the CA-1 reports indicate that the current Media Database is too small for the tape information to be converted, a warning message is issued that recommends that you enlarge the Media Database.

If you choose to reallocate the Media Database, appropriate screens are displayed to prompt you for information about the desired Media Database size.



NOTE

If you are currently only converting information for part of your tape library, you can choose not to enlarge the Media Database at this time.

Submit the Conversion Job

The next stage of the automatic conversion uses the CA-1 reports (described above) to create volume and dataset records for the CONTROL-M/Tape Media Database. The job that performs this task runs one or more of the following programs (depending on the version of CA-1 in use at the site:

Table 7 Programs that the Job Conversion Runs On

Program	Description
CTTCGRW	Splits the CA-1 report into two parts; one that describes volumes, and one that describes datasets. This program is run at sites with CA-1 version 5.1 or later.
CTTCUC15	Extracts data from the CA-1 reports to a general work file called VWR. The VWR file contains all volume and dataset information necessary for building the volume and dataset records in the Media Database.
CTTDLD5	Loads the volume and dataset records from the VWR file into the data component of the Media Database. (This program runs utility CTTDLD5 in CONVERT mode.)
CTTBIX	Runs utility CTTBIX in CONVERT mode to build index records for the CONTROL-M/Tape Media Database. This utility must end with a condition code of 0. If CTTBIX ends with condition code 8, it indicates that errors were detected, but the utility continued and the Media Database Index file was built successfully. The inconsistencies indicated by issued messages must be investigated and manually corrected.

Confirm that all steps of the conversion job ended with a condition code of 0 and press **Enter**.

For more information about utilities CTTDLD and CTTBIX, see the CONTROL-M/Tape chapter of the *INCONTROL for z/OS Utilities Guide*.



NOTE

You can optionally restart tape processing after this step. However, due to performance considerations, it is recommended that you not start tape processing until after all conversion steps have been completed. For more information, see “[Step 7: Resume Tape Activity](#)” on page 50.

Step 3: Apply Vault Rules

Conversion job CONVVTM applies the vault rule definitions created in job CONVCVMS to the (converted) volumes in the Media Database. It runs the CTTVTM utility with the MODE=CONVERT expression included in the TYPEVLT statement.

During this run of the CTTVTM utility

- rule definitions are reloaded
- vault patterns for each volume are recalculated
- the current location of each volume is preserved within the vault pattern
- slot and box records are built

- 1 Check the results of the CONVVTM job. The distribution report generated by utility CTTVTM lists all volumes that need to be moved as a result of this run of the utility.
- 2 This report should be empty, indicating that no volumes need to be moved. If it is not empty, check the vaulting rules for the volumes listed in the report.

The report may indicate volume movement within a vault (for example, a volume moving from one slot in a specific vault to another slot in the same vault). This situation is normal and may only reflect differences in slot management between CA-1 and CONTROL-M/Tape.

For more information about the CTTVTM utility, see the CONTROL-M/Tape chapter of the *INCONTROL for z/OS Utilities Guide*.

Step 4: Apply Retention Rules

The CONVCRTM conversion job runs the CTTRTM utility with the expression MODE=CA1CONV included in the TYPERET statement. In this mode, no retention action is performed. This mode is used to specify the prefix length of the dataset name in the Media Database dataset records. This information is used later for retention management of cyclic datasets.

For more information about the CTTRTM utility, see the CONTROL-M/Tape chapter of the *INCONTROL for z/OS Utilities Guide*.

NOTE

This job may take a long time to complete, but only needs to be run once after the conversion.



Submit the job and check the results of the run.

The job must end with a condition code of 0. If the Scratch Report produced by utility CTTRTM lists volumes that have expired as a result of the run, investigate these cases. Do not perform any expiration during this run of utility CTTRTM.

Step 5: Verify Media Database Integrity

This step consists of the CONVIDB job, which runs the CTTIDB utility after the conversion to verify the integrity of the Media Database. For more information about utility CTTIDB, see the CONTROL-M/Tape chapter of the *INCONTROL for z/OS Utilities Guide*.

CTTIDB issues messages if database inconsistencies are detected. Examples of such inconsistencies are:

- errors in chain links that connect volumes in a multi-volume chain
- active volumes that do not contain datasets
- scratch volumes that contain active datasets
- discrepancies between Media Database records

If the CTTIDB utility reports errors, it may point to problems that were overlooked or missed in the preparation of the CA-1 Tape Management Catalog (TMC). In this case, correct the original data and repeat the conversion process from where the Media Database is formatted (in the Automatic Conversion steps described in [“Step 2: Automated Conversion Steps” on page 34](#)).

You can also correct problems directly in the CONTROL-M/Tape Media Database. For more information about the CTTIDB utility, see the chapter that discusses media database integrity verification in the *CONTROL-M/Tape Implementation Guide*, and the CONTROL-M/Tape chapter of the *INCONTROL for z/OS Utilities Guide*.

CTTIDB also generates Media Database statistics that can be used for comparison with the CA-1 TMC. The statistics provided include

- the number of used data records
- the number of used index records
- the number of free data records
- the number of free index records
- the total number of records according to type (that is, volume, dataset, and scratch)

For information about the structure of the Media Database (for example, data records and index records), see the CONTROL-M/Tape chapter of the *INCONTROL for z/OS Administrator Guide*.

Step 6: Collect Statistics for Stacking

This step consists of the CONVSTK job, which runs the CTTSTK utility to collect dataset statistics from the CONTROL-M/Tape Media Database. This statistical information is used by the CONTROL-M/Tape Dynamic Dataset Stacking facility. This job must run with MODE set to MDB.

- 1 Submit the CONVSTK job.
- 2 Check the results.

All steps must end with a condition code of 0.



NOTE

Depending on the size of your Media Database, this utility may run for a long time.

For more information about collection of dataset statistics, see utility CTTSTK in the CONTROL-M/Tape chapter of the *INCONTROL for z/OS Utilities Guide*.

For more information about dataset stacking, see the dataset stacking chapter of the *CONTROL-M/Tape Implementation Guide*.

Step 7: Resume Tape Activity

If tape activity was not yet restarted, you can restart it at this point.

- 1 If CA-1 was stopped, and CONTROL-M/Tape will be operating in Global Test mode or in Global Phased mode, start CA-1 now.
- 2 Start CONTROL-M/Tape with the following command:

```
S CTTI NI T, PARM=' MODE=I NI T'
```

Conversion from CA-TLMS

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Overview

This chapter describes the CA-TLMS to CONTROL-M/Tape conversion process. A brief description of the differences between CA-TLMS and CONTROL-M/Tape is followed by detailed conversion steps.

Conversion to CONTROL-M/Tape is currently supported for CA-TLMS versions 5.3, 5.4, and 5.5. CA-TLMS is comprised of the following primary components:

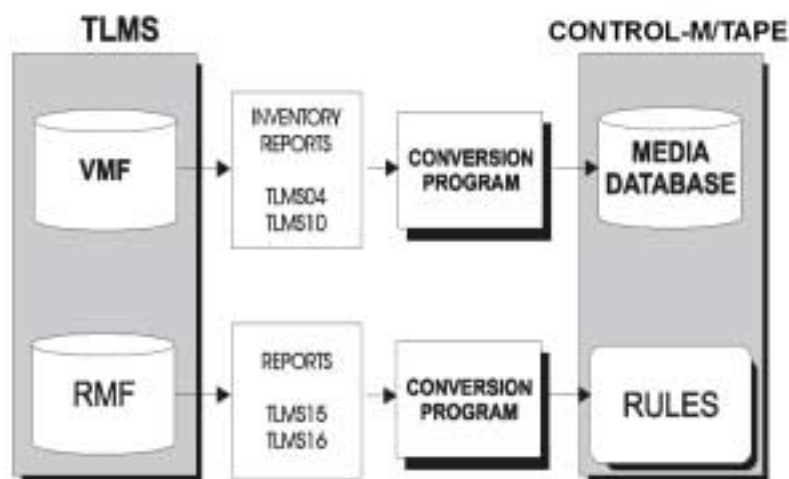
Table 8 CA-TLMS Primary Components

Component	Description
Volume Master File (VMF)	Volume and dataset information for each volume in the tape library.
Retention Master File (RMF)	User-defined policies for storage (i.e., vaulting) and retention management.
Tape Retention System (TRS)	Performs retention and storage procedures according to information in the VMF and RMF.
Online Recorder	Accesses and maintains the VMF according to tape activity at the site.

CA-TLMS Scratch Pool management can be used to restrict certain datasets to specific tape volumes.

CONTROL-M/Tape volume and dataset information is stored in the CONTROL-M/Tape Media Database (MDB). When a dataset is created, CONTROL-M/Tape records dataset attributes in the relevant dataset record in the Media Database and updates the appropriate volume record. Dataset access is tracked in both records. As CONTROL-M/Tape rules are processed, changes to media management attributes (e.g., vault patterns and retention periods) are updated in the Media Database.

The following diagram indicates how the major CA-TLMS components are converted to CONTROL-M/Tape format.

Figure 7 Conversion of CA-TLMS Components to CONTROL-M/Tape

VMF Cleanup

The CA-TLMS Volume Master file (VMF) contains sequential, fixed length records that contain volume and dataset information.

To avoid propagating errors to the Media Database, ensure that the VMF is free of errors and data discrepancies (e.g., chaining problems or dead volume entries) before conversion. The following CA-TLMS utilities can be used to help clean up the VMF:

Table 9 CA-TLMS Utilities Used to Clean Up the CA-TLMS Volume Master File (VMF)

Utility	Description
TLMSVCVS	Verifies the VMF.
TLMSTRS, and TLMSTRAN	Updates tape movement, retention criteria, and scratch status in VMF records.

For more information about VMF cleanup, see [“CA-TLMS Conversion Process” on page 58](#), and your CA-TLMS documentation.

Volume Ranges

CONTROL-M/Tape requires definition of a range of volume serial numbers (volser) for each media type before it generates volume records. Volumes in the VMF database that are not within the ranges specified to CONTROL-M/Tape are not converted to the CONTROL-M/Tape Media Database. Make an inventory of all active volume ranges in your data center. This inventory must be used as a reference when specifying volume ranges to CONTROL-M/Tape during conversion.

Retention, Pool, and Vault Definitions

The conversion tool creates CONTROL-M/Tape rules according to the retention and vault management definitions described in the RMF.

Rules describing pool information are defined manually according to a CA-TLMS report. For more information, see [“Step 11: Define Scratch Pools and Related Rules” on page 72](#).

All CONTROL-M/Tape rules have the same format and use the same set of parameters to define actions and other criteria. After CONTROL-M/Tape implementation has been completed and CONTROL-M/Tape is running in production mode, rules created during conversion can be combined so that retention, vaulting, and pool specifications for a dataset are described in the same rules.

Retention Management

The CA-TLMS Tape Retention System (TRS) uses the information stored in the VMF and RMF to control volume retention. Retention for a dataset may be defined in

- a specific RMF entry
- a keyword specified by JCL parameter EXPDT
- the RMF Default record

If retention for a dataset is specified in more than one of these locations, CA-TLMS applies the retention definition with the highest priority, as demonstrated in the following table.

Table 10 CA-TLMS Retention Definition Priorities

Retention Definition Type	Priority
RMF entry	Highest priority
Retention specified in JCL (e.g., using parameter EXPDT)	Medium priority
Retention specified in the RMF Default record	Lowest priority

The conversion programs determine the appropriate retention for each dataset and automatically convert CA-TLMS retention policies to CONTROL-M/Tape rule definitions. The name of each CONTROL-M/Tape rule definition generated from CA-TLMS retention policies begins with a prefix specified during conversion.

NOTE



CONTROL-M/Tape retention rules are created from information in the RMF. Therefore, they do not reflect the Tape Default Retention (DEF Statements) specified in member TLMSIPO of the CAILOPTIO library. Tape Default Retention can affect Keep Data Control (Type 2) datasets.

To ensure compatibility with CA-TLMS during implementation of CONTROL-M/Tape, you must define CONTROL-M/Tape rules that specify the information contained in the DEF statements in use at your site.

Storage Location (Vault) Management

CA-TLMS manages the movement of tape volumes between different storage locations according to commands specified in the RMF. Storage type and tape capacity are defined for each location.

The conversion tool automatically converts RMF location information to CONTROL-M/Tape rule definitions.

Locations with more than one type of storage, such as CABINET, BOX, and UNDEFINED, are described by multiple records in the RMF. A different Location ID is assigned to each type of storage in each storage location.

During conversion, a CONTROL-M/Tape Vault definition must be defined for each CA-TLMS location ID (storage location). All relevant cabinet IDs and their starting slot numbers must also be defined for these vaults.

Pool Management

CA-TLMS Tape Pool management allows ranges of tape volumes in a tape library to be defined as a tape pool for a specific group of users or application. Scratch requests are restricted to a specific pool according to a specified DSN prefix, job name, EDM name and program name. On detection of a scratch mount request, CA-TLMS checks the mounted tape volume against the volume ranges that are valid for the dataset.

CONTROL-M/Tape Pool definitions and relevant rule definitions are manually defined during conversion to ensure compatibility between CONTROL-M/Tape and CA-TLMS pool management. For more information, see [“Step 11: Define Scratch Pools and Related Rules” on page 72](#).

External Data Manager

CONTROL-M/Tape can track tape volumes that are managed by an External Data Manager (EDM) such as DFSMSHsm or CA-Disk. If CA-TLMS interfaces with an EDM at your site, appropriate CONTROL-M/Tape rules must be defined to identify the relevant datasets as EDM-controlled.

For more information, see [“Step 9: Define and Edit Rules in Special Cases” on page 70](#).

Tape Management Utilities

Various utilities are used by CA-TLMS and CONTROL-M/Tape to perform management functions for your tape library. CA-TLMS utilities and the equivalent utilities in CONTROL-M/Tape are listed in [Table 11](#).

Table 11 CA-TLMS Utilities and Equivalent CONTROL-M/Tape Utilities (part 1 of 2)

CA-TLMS	Description	CONTROL-M/Tape
CTLMAIN	Initialization utility	CTTINIT
TLMSV CVS	Checks the integrity of the tape management database.	CTTIDB
TLMSTRS	Retention and vault management.	CTTRTM
TLMSTRAN		CTTVTM
TLMSRMUP	Updates retention and vaulting information in the tape management database.	Rule Definition facility

Table 11 CA-TLMS Utilities and Equivalent CONTROL-M/Tape Utilities (part 2 of 2)

CA-TLMS	Description	CONTROL-M/Tape
TLMSVMIN	Management of the tape database.	CTTDLD IOADUL IOADLD CTTBIX
TLMSVMUT	Backup and restore of the tape management database.	Any backup utility
CA-EARL	Produces reports from the tape management database.	CTTRPT

For a detailed description of all CONTROL-M/Tape utilities (including those mentioned above), see the CONTROL-M/Tape chapter of the *INCONTROL for z/OS Utilities Guide*.

CA-TLMS Conversion Process

The process of conversion from CA-TLMS to CONTROL-M/Tape includes

- executing CA-TLMS utilities
- editing operations
- running CONTROL-M/Tape jobs
- modifying vault and/or pool definitions through the CONTROL-M/Tape Online facility

The steps required for CA-TLMS to CONTROL-M/Tape conversion are described in detail in the remainder of this chapter. The conversion steps are accessed by the INCONTROL Installation and Customization Engine (ICE).

Use the following steps to begin conversion from CA-TLMS to CONTROL-M/Tape.

- 1** Enter ICE as described in the ICE chapter of the *INCONTROL for z/OS Installation Guide*.
- 2** In the Major Step Selection screen, type **CTT** in the product field, select “INSTALL CTx” (ICE option 3) from the IOA installation menu, and press **Enter**. The CONTROL-M/Tape installation menu is displayed.
- 3** Choose major step 14 “Conversion from CA-TLMS”

Figure 8 ICE Screens for Converting CA-TLMS to CONTROL-M/Tape

----- Minor Steps Selection -----					
Environment: IOA610 Product: CTT					
Major Step: 14 Conversion from CA-TLMS					
Sel values: S Select step C Mark step as completed R Reset status					
B Browse Step X Mark step as excluded ? Help					
PF7/PF8 To scroll through all Steps					

Sel	Step	Status	Type	Opt	Description
===	====	=====	=====	===	=====
.	1	*	Edit	R	Set Conversion Parameters
.	2		Job	R	Compile and Link Conversion Programs
.	3		Extrnl		Stop Tape Activity
.	4		Job		Format Media Database
.	5		Extrnl		Prepare CA-TLMS VMF for Conversion
.	6		Job		Create CA-TLMS Reports
.	7		Job		Convert Reports into Media Database
.	8		Job		Convert the RMF into Rules
.	9		Extrnl		Define EDM Rules and TLMSIPO Rules
.	10		Extrnl		Define Vaults
.	11		Extrnl		Define Scratch Pools and Related Rules
.	12		Extrnl	R	Adjust Rule List
.	13		Job		Apply Vault Rules
.	14		Job		Apply Retention Rules
.	15		Job		Verify Media Database Integrity
.	16		Extrnl		Resume Tape Activity
.	17		Extrnl		Adjustments
.	18		Job	Y	Collect Statistics for Stacking
-----> End of Minor Steps <-----					

ICE screens can be used to check and record your progress during conversion, and to run some of the jobs performed during certain conversion steps.

If you are not yet familiar with ICE, BMC Software recommends that you review *Installation and Customization Engine* chapter of the *INCONTROL for z/OS Installation Guide*.

Procedure Table

The conversion process consists of the following operations and programs.

Table 12 Steps in the CA-TLMS Conversion Process

Step	Operation	Job/Screen/ External Event	Relevant Program
1	Set Conversion Parameters	Edit	N/A
2	Compile and Link Conversion Programs	CONVTASM	N/A
3	Stop Tape Activity	External Event	N/A
4	Format Media Database	CONVFMDB	IOADBF
5	Prepare CA-TLMS VMF for Conversion		CATVCVS (TLMSVCVS)
6	Generate Volume and Dataset Data From the VMF, And Retention, Location and Selection Data From RMF	CONVTREP	CATRPTS
7	Extract data from VMF Reports to the VWR File	CONVTMDB	CTTCTR1
	Load MDBC Data Records From the VWR File	Same as above	CTTDLD5
	Build MDBC Index Records	Same as above	CTTBIX
8	Convert RMF into Rules	CONVTRMF	CTTCTR2
9	Define External Data Manager (EDM) rules	Rule Definition screen (TR)	N/A
10	Define vaults	Vault Definition screen (TV)	N/A
11	Define Scratch Pools and Related Rules	Pool Definition screen and Rule Definition screen (TP and TR)	N/A
12	Adjust Rule List	Edit	N/A
13	Apply Vault Rules	CONVVTM	CTTVTM
14	Apply Retention Rules	CONVTRTM	CTTRTM
15	Verify Media Database Integrity	CONVIDB	CTTIDB
16	Resume Tape Activity	External Event	N/A
17	Final Adjustments	External Event	N/A
18	Collect Statistics for Stacking	CONVSTK	CTTSTK

Step 1: Set Conversion Parameters

Before running the conversion jobs, several conversion parameters must be modified to match your site standards. The conversion parameters are listed in member CTTTLMDF in the IOA MAC library. These parameters specify default values in the rules created during the conversion. Change the default values of these parameters only if it is necessary for compatibility with your site's rule naming conventions:

Table 13 Conversion Parameters in Member CTTTLMDF (part 1 of 3)

Parameter	Description
TLMSVER	The version of CA-TLMS installed at your site. Valid values are 5.3, 5.4, and 5.5. Default: 5.3
RLDRMFN	The prefix for CONTROL-M/Tape retention rules generated from the Retention Master file (RMF). The name of each CONTROL-M/Tape retention rule is comprised of this prefix and a sequential number. Up to three characters can be specified for this field. Default: RMF
RLDGROP	The group name for CONTROL-M/Tape rules created by the conversion tool. A Group name is a descriptive name for a group of rules. Up to twenty characters can be specified for this field. Default: TLMS-RULES
RLDGUID	The user ID (OWNER) for CONTROL-M/Tape rules generated during conversion. The OWNER field is mandatory for all rules and can be useful during implementation of CONTROL-M/Tape security. Up to eight characters can be specified for this field. Default: CTTCONV
RLDPTY	The rule sequence priority for rules created by the conversion tool. The order in which the rules are scanned is very important for rule processing. Sequence priority controls the order in which rules are scanned. When CONTROL-M/Tape searches for a rule, the first rule that matches the selection criteria is activated. Priority is determined in ascending order where blank < A < Z < 0 < 9. For details about order of rule processing, see the organization and administration chapter of the <i>CONTROL-M/Tape User Guide</i> . This field contains two characters. Default: 00 (medium priority)

Table 13 Conversion Parameters in Member CTTTLMDF (part 2 of 3)

Parameter	Description
RLDCNSR	<p>The value for the CONTROL-M/Tape CONTINUE SEARCH field. This field determines whether or not CONTROL-M/Tape searches for additional rules that match a dataset currently being processed. Specify N (No) for this parameter to ensure compatibility with CA-TLMS. Valid values are:</p> <ul style="list-style-type: none"> ■ Y – Continue search. ■ N – Do not continue search. Default.
RLDPRFX	<p>Indicates whether or not dataset names specified for datasets with CYCLE type retention must be used as prefixes that identify different generations (cycles) of the dataset. This parameter indicates the value for subparameter PREFIX in DO RETENTION statements of CONTROL-M/Tape rules created by the conversion. The expression RLDPRFX=N is compatible with the cycle retention that is performed in the CA-TLMS working mode. For more information, see DO RETENTION in the rule parameters chapter of the <i>CONTROL-M/Tape User Guide</i>. Valid values are:</p> <ul style="list-style-type: none"> ■ Y – Consider datasets with the same prefix as different generations of the same dataset. ■ N – Ignore specified prefixes, and identify each dataset by its full name. Default. Compatible with CA-TLMS working mode.
RLDMODE	<p>Rule specific operation mode for rules created during conversion. When a rule is executed in TEST mode, information is recorded in the Media Database, but CONTROL-M/Tape does not perform any actions.</p> <p>If TEST is specified for CONTROL-M/Tape installation parameter MODE, all rules are run in test mode (that is, Global Test mode overrides any rule-specific production mode). It is recommended that you not modify the default value for this parameter. Valid values are:</p> <ul style="list-style-type: none"> ■ P – Production mode. Default. ■ T – Test mode.
RLDDDESC	<p>A free-text rule description to be inserted in the DESCRIPTION field of each rule created by the conversion tool. This field can contain a maximum of 61 characters.</p> <p>Default: CONVERTED FROM CA-TLMS RMF.</p>

Table 13 Conversion Parameters in Member CTTLMDF (part 3 of 3)

Parameter	Description
DCCODES	<p>Data Center location IDs. Specifies location IDs that refer to the data center (i.e., the main library). If necessary, two location IDs (separated by commas) can be specified for this parameter (e.g., DC,LB). Default: DC.</p> <p>The locations IDs specified in parameter DCCODES are converted to location MAINLIB in CONTROL-M/Tape.</p> <p>Location IDs that refer to other storage locations must not be specified in parameter DCCODES.</p>
DATEFRM	<p>Date format used in CA-TLMS reports produced in Step 6 on page 67. Valid values are:</p> <ul style="list-style-type: none"> ■ A – mm/dd/yy ■ J – yy/mm/dd ■ W – dd/mm/yy. Default.
CABINET	<p>Whether or not to use CA-TLMS cabinet and slot numbers (CCSS values). Valid values are:</p> <ul style="list-style-type: none"> ■ Y – The conversion program translates cabinet and slot numbers (CCSS values) to slot numbers in CONTROL-M/Tape. ■ N – Cabinet and slot numbers are ignored. A slot number of 0 is assigned to all volumes. Default. <p>If Y is specified for this parameter, you have to define the appropriate cabinets in conversion program CTTCTR1 (described in Step 2 below).</p>
MAINVLT	<p>How the conversion program handles volumes that are being placed in MAINLIB. Valid values are:</p> <ul style="list-style-type: none"> ■ Y – The volumes are marked as “vaulted”. ■ N – The volumes are marked as “not vaulted”. Default. <p>BMC Software recommends that you use this default setting.</p>

Step 2: Compile and Link Conversion Programs

The CONVTASM job compiles and links all conversion programs.

Defining Cabinets to CONTROL-M/Tape

The CTTCTR1 conversion program, which is compiled by the CONVTASM job, builds the database work file from CA-TLMS reports 4 and 10. If you specified Y for the CABINET parameter in Step 1, you must define the appropriate cabinets in this program before running the CONVTASM job.

- 1 Edit the CTTCTR1 member in the IOA SAMPEXIT library.
- 2 Look for the CABINET symbol to locate the CABINET table. This is the table that is used to convert the CA-TLMS cabinets to CONTROL-M/Tape slot numbers (see Figure 9).

Figure 9 CABINET table format in CTTCTR1 member

CABINET	EQU *		
LOC_ID	DC	C' LO'	<=== CHANGE
CAB_ID	DC	C' ID'	<=== CHANGE
CABSTART	DC	FL4' 1000'	<=== CHANGE
CABENTRY	EQU *-CABINET		
	DC	C' V1' , C' AA' , FL4' 1100'	<=== CHANGE
	DC	C' V1' , C' AB' , FL4' 1200'	<=== CHANGE
	DC	C' V2' , C' AA' , FL4' 1300'	<=== CHANGE
	DC	C' V2' , C' AB' , FL4' 1400'	<=== CHANGE
	DC	C' V3' , C' AA' , FL4' 1500'	<=== CHANGE
	DC	C' V3' , C' AC' , FL4' 1600'	<=== CHANGE
CABEND	DC	C' 00' , C' 00' , FL4' 0'	END OF LIST

The CABINET table contains the following columns:

- First field – 2-character vault identifier. This vault identifier is common to CA-TLMS and CONTROL-M/Tape.
 - Second field – 2-character CA-TLMS cabinet identifier.
 - Third field – CONTROL-M/Tape starting slot number of a range of slot numbers for a given cabinet.
- 3 Specify a CONTROL-M/Tape starting slot number for each CA-TLMS cabinet identifier within each vault. The range of slot numbers must be unique in each vault.

— EXAMPLE —

- An installation with 800 volumes is contained within 4 vaults: V1, V2, V3, V4.
- Each vault has 2 cabinet identifiers: AA and AB.
- Each CA-TLMS cabinet identifier has 100 slots (0-99).

The following table shows one way to specify the CONTROL-M/Tape starting slot numbers for each cabinet, with the resulting slot range:

Table 14 Example specification of CONTROL-M/Tape starting slot number

Vault	CA-TLMS cabinet and slot number	CONTROL-M/Tape starting slot number	Resulting CONTROL-M/Tape slot range
V1	AA (0-99)	1100	1100-1199
	AB (0-99)	1200	1200-1299
V2	AA (0-99)	1300	1300-1399
	AB (0-99)	1400	1400-1499

Vault	CA-TLMS cabinet and slot number	CONTROL-M/Tape starting slot number	Resulting CONTROL-M/Tape slot range
V3	AA (0-99)	1500	1500-1599
	AB (0-99)	1600	1600-1699
V4	AA (0-99)	1700	1700-1799
	AB (0-99)	1800	1800-1899

The following figure shows how to edit the CABINET table to produce this result:

Figure 10 Example format to convert CA-TLMS cabinet to CONTROL-M/Tape cabinet

CABINET	EQU *		
LOC_ID	DC C' V1'	VAULT	V1
CAB_ID	DC C' AA'	CABINET	AA
CABSTART	DC FL4' 1100'	STARTING SLOT NUMBER	1100
CABENTRY	EQU *-CABINET		
	DC C' V1' , C' AB' , FL4' 1200'	V1 AB STARTING SLOT NUMBER	1200
	DC C' V2' , C' AA' , FL4' 1300'	V2 AA STARTING SLOT NUMBER	1300
	DC C' V2' , C' AB' , FL4' 1400'	V2 AB STARTING SLOT NUMBER	1400
	DC C' V3' , C' AA' , FL4' 1500'	V3 AA STARTING SLOT NUMBER	1500
	DC C' V3' , C' AB' , FL4' 1600'	V3 AB STARTING SLOT NUMBER	1600
	DC C' V4' , C' AA' , FL4' 1700'	V4 AA STARTING SLOT NUMBER	1700
	DC C' V4' , C' AB' , FL4' 1800'	V4 AB STARTING SLOT NUMBER	1800
CABEND	DC C' 00' , C' 00' , FL4' 0'	END OF LIST	

In this example CABINET table

- CA-TLMS vault V2, cabinet AA, slot 34 is referred by CONTROL-M/Tape as slot number 1334.
- CA-TLMS vault V3, cabinet AB, slot 66 is referred by CONTROL-M/Tape as slot number 1666.

- After you have edited the CTTCRT1 member, submit job CONVASM. All job steps must end with a condition code of 0.

Step 3: Stop Tape Activity

Stop all tape activity. If CONTROL-M/Tape is active, bring it down with the following command:

```
S CTTINIT, PARM='MODE=TERM'
```

BMC Software recommends that you also bring down CA-TLMS at this time.

**WARNING**

If CA-TLMS is not brought down at this time, information about datasets processed after production of the CA-TLMS reports (in Step 6) are not incorporated into the CONTROL-M/Tape Media Database that is produced by the conversion tool.

Step 4: Format Media Database

Run the CONVFMDB job to format the CONTROL-M/Tape Media Database. If the Media Database already exists, for example, due to previous conversions, reformat it to remove all old data.

All job steps must end with a condition code of 0.

Step 5: Prepare CA-TLMS Volume Master File (VMF) for Conversion

CONTROL-M/Tape builds the Media Database from the volume and dataset information in the VMF. Before executing the conversion process, the VMF must be free from errors and data discrepancies (for example, chaining problems and dead volume entries). It is also necessary to ensure that all VMF records contain the most current retention and location information before conversion.

Errors that remain in the VMF are carried over to the CONTROL-M/Tape Media Database during conversion.

Use the following CA-TLMS utilities to check the integrity of the CA-TLMS VMF and if necessary correct errors.

Table 15 CA-TLMS Utilities Used to Check the Integrity of the CA-TLMS VMF (part 1 of 2)

Utility	Description
TLMSVCVS	Detects invalid internal multivolume and multidataset chains, or errors that exist in the free chain of unused AUX records. Invalid or broken chains may be due to invalid updates, abnormal terminations, system crashes, or incomplete restoration during disaster recovery procedures.
	Note: You must correct all errors that are detected by this utility.

Table 15 CA-TLMS Utilities Used to Check the Integrity of the CA-TLMS VMF (part 2 of 2)

Utility	Description
TLMSRMUP	Manually updates the RMF. If you need to add or change location or retention criteria in the RMF before the conversion process, run this utility before executing procedure CATTRS (described below). This utility produces CA-TLMS Report 40.
CATTRS	Runs the CA-TLMS Tape Retention System. The following utilities are executed by this procedure.
TLMSTRS	Reads the VMF and RMF, generates a transaction file for processing by utility TLMSTRAN (below), and produces CA-TLMS reports 41 and 44.
TLMSTRAN	Applies transactions to the VMF according to the file produced by utility TLMSTRS. The CA-TLMS Online Recorder must be active while utility TLMSTRAN is running.

Step 6: Create CA-TLMS Reports

Before running this job, run the daily retention and vaulting processing for CA-1. This is necessary to convert to PHASED or PROD modes. This is also recommended when you convert to TEST mode.

NOTE



Users of TLMS version 5.4 who have set the default data format in reports to a non-standard format (for example, 12-Jan-2000) must insert the following statement as the first statement in the SYSIN file that is used in job CONVTREP:

```
SDT date
```

where *date* is mm/dd/yyyy, dd/mm/yyyy or yyyy/mm/dd based on the date format specified for parameter DATEFRM in Step 1 of the conversion process.

All job steps must end with a condition code of 0.

This job is used to generate CA-TLMS reports from the VMF and the RMF. These reports are used in a later step to create CONTROL-M/Tape rule definitions, and to build the CONTROL-M/Tape Media Database.

This job uses the CATRPTS CA-TLMS procedure to produce the following reports:

Table 16 CA-TLMS Reports Created by Job CONVTPREP

Report	Description
TLMS004	Active Data Set Report. Lists all datasets in the VMF that are not in scratch status.
TLMS010	Volume Master Report. Lists all volumes (according to volume serial number) in the VMF regardless of their status.
TLMS015	Tape Retention Location Report. Lists all locations (local and remote) defined in the RMF.
TLMS016	Tape Retention Selection Report. Lists all retention commands in the RMF. Retention type, location ID, and count value are listed for each dataset or dataset group.

Step 7: Convert Reports into Media Database

This step performs job CONVTMDB that converts reports created by job CONVTPREP (in Step 6) into volume and dataset records in the CONTROL-M/Tape Media Database. The names of reports 4 and 10 that were created by job CONVTPREP are passed to job CONVTMDB.

The following programs are executed by job CONVTMDB.

Table 17 Programs Executed by Job CONVTMDB

Program	Description
CTTCTR1	Extracts data from reports generated by job CONVTPREP (Step 6), to a general work file called the VWR file. The VWR file contains all the volume and dataset information necessary for building the volume and dataset records in the CONTROL-M/Tape Media Database. This program must end with condition code 0. If it ends with a condition code other than 0, resolve the errors indicated by the messages, and rerun job CONVTMDB.
CTTDLD5	Runs utility CTTDLD in CONVERT mode to load the volume and dataset records from the VWR file into the data component of the Media Database. This program must end with a condition code of 0.
CTTBIX	Runs utility CTTBIX in CONVERT mode to build the index records for the CONTROL-M/Tape Media Database. This program must end with a condition code of 0. Condition code 8 indicates that errors were detected but the utility continued and the Media Database Index file was built successfully. The inconsistencies indicated by issued messages must be investigated and manually corrected.

Before submitting this job, edit it as described below.

Two parameters (REP04 and REP10) are passed to procedure CONVTMDB. Change these parameters in the //EXEC statement following the //PEND statement so that they specify the names of the reports created by job CONVTRMP in Step 6.

Specify the ranges of volumes used at your site in the LOAD.SYSIN DD statement. Volumes in the CA-TLMS VMF that are not within the ranges specified to CONTROL-M/Tape are not added to the Media Database. Specify the following parameters for each RANGE statement:

Table 18 Parameters for Ranges of Volumes

Parameter	Description
FIRST	First volume serial number in the range.
LAST	Last volume serial number in the range.
MEDIA	Volume media type.
VENDOR	Vendor of the media (Optional).

Submit Job CONVTMDB

NOTE



If any of the steps of this job end abnormally, it is necessary to reformat the CONTROL-M/Tape Media Database before rerunning job CONVTMDB. For details on how to format the Media Database, see “[Step 4: Format Media Database](#)” on page 66.

For more information about utilities CTTDL and CTTBIX, see the CONTROL-M/Tape chapter of the *INCONTROL for z/OS Utilities Guide*.

Step 8: Convert the Retention Master File (RMF) Into Rules

This step consists of running job CONVTRMF. This job creates CONTROL-M/Tape rule definitions from retention and location data in report TLMS016, generated in Step 6.

NOTE



Verify that the relevant CA-TLMS files have been cleaned up and that all integrity errors in CA-TLMS tape library information have been resolved. For more information about ensuring CA-TLMS information integrity, see “[Step 5: Prepare CA-TLMS Volume Master File \(VMF\) for Conversion](#)” on page 66, and your CA-TLMS documentation.

Before running this job, specify the following parameters in the CONV step of this job:

Table 19 Parameters for Job CONVTRMF

Parameter	Description
REP	Name of the report file (generated using job CONVTREP) containing report TLMS016.
RULEMEM	Rule member name to be created in the CONTROL-M/Tape Rule Definition library. This library is allocated during CONTROL-M/Tape installation. For the full name of the library, refer to your installation procedures.

Run job CONVTRMF

All steps of this job must end with a condition code of 0. Do not change the rule definitions created by this job until after you run job CONVVTM in “[Step 13: Apply Vault Rules](#)” on page 74 and job CONVTRTM in “[Step 14: Apply Retention Rules](#)” on page 74. This ensures compatibility between information in the CONTROL-M/Tape Media Database and the CA-TLMS VMF and RMF.

Step 9: Define and Edit Rules in Special Cases

This step consists of manual definition of rules to support certain functions that are not handled automatically by the conversion job.

EDM Rules

If an External Data Manager, such as DFSMSHsm, or CA-Disk, is defined in your CA-TLMS system, rules must be defined in CONTROL-M/Tape to identify its datasets as EDM-controlled before continuing with the conversion process.

Use the following steps to convert EDM information at your site:

1 Analyze the EDM information in CA-TLMS.

- For CA-TLMS version 5.3, check CA-TLMS user Exit TLMSXUPD in the CAISRC library to determine what EDM support has been implemented, and check member TLMSIPO or Exit TLMSXUP for existing EDM definitions.
- For CA-TLMS version 5.4, check parameter EDM in member TLMSIPO in your CA-TLMS PARM library.

- 2 Identify EDM datasets to CONTROL-M/Tape. In the CONTROL-M/Tape Rule Definition screen (Screen TR), create a rule with a DO RETENTION=EDM statement for each EDM dataset or group.



NOTE

Other rules may have been created in earlier conversion steps for certain EDM-controlled datasets (that is, specifying the DO RETENTION=PERMANENT statement) if other retention definitions for these datasets were included in the CA-TLMS RMF.

Default Rule

If necessary, define CONTROL-M/Tape rule that implement Tape Default Retention policies (DEF statements) specified in the CA-TLMS System Options (TLMSIPO) member. This ensures compatibility between CONTROL-M/Tape and CA-TLMS operations. For example, define rule to handle datasets that are managed in CA-TLMS with Keep Date retention type (Type 2).

The conversion process converts the TLMS RMF Default record into a CONTROL-M/Tape rule named \$DEFAULT. This enables CONTROL-M/Tape to use the same default retention period that was used by TLMS. If there is no \$DEFAULT rule, CONTROL-M/Tape uses the retention period set in the DEFEXPDT parameter in the CTT Parm member that was created when CONTROL-M/Tape was installed. Compare the retention period specified in the \$DEFAULT rule with that in the DEFEXPDT parameter, and consider whether to delete the \$DEFAULT rule and allow the setting in the DEFEXPDT parameter to take effect.

For more information on the DEFEXPDT parameter, see the CONTROL-M/Tape installation parameters section in the *INCONTROL for z/OS Installation Guide*.

The Retention Period in JCL

You can set the retention period of the dataset in the DD statement of each job by means of the EXPDT parameter.

If the OVERJCL parameter is set to YES, the retention period in a CONTROL-M/Tape rule statement overrides the retention period set by the JCL EXPDT parameter. If the OVERJCL parameter is set to NO, the retention period set in the rule is ignored, and the JCL EXPDT retention period takes effect.

CONTROL-M/Tape does not automatically go through the process of comparing the expiration date setting in an individual rule with the expiration date in the JCL EXPDT parameter and using the later of the two dates to define the retention period.

Regardless of whether the expiration date in the rule setting or that in the JCL EXPDT produces the longer retention period, if you want CONTROL-M/Tape to ensure that the dataset will be retained for the longer of the two retention periods, you must edit the rule accordingly, as shown in the following example:

- The existing rule sets the expiration period to 10 days, by the DO RETENTION = DAYS 10 statement.
- The period set in the JCL EXPDT parameter is 20 days.
- To ensure that the expiration period is the longer period, in this case the full 20 days defined by the JCL parameter, edit the definition in the rule as follows:
DO RETENTION=DAYS 10 AND JCL EXPDT.

For more information about retention periods, see the organization and administration chapter in the *CONTROL-M/Tape User Guide*.

For more information about the OVERJCL parameter, see the organization and administration chapter in the *CONTROL-M/Tape User Guide* and the CONTROL-M/Tape chapter in the *INCONTROL for z/OS Installation Guide*.

Step 10: Define Vaults

Before the converted vault (location) rules created in job CONVTRMF can be applied to the Media Database during Vault Management, the vaults must be defined to CONTROL-M/Tape. All CA-TLMS locations defined in the RMF are listed in report TLMS015, generated in Step 6.

Define vaults to CONTROL-M/Tape by using the Vault Definition screen (TV). Select the member that was allocated during installation for vault definitions. The default member is \$\$VAULT in the CONTROL-M/Tape PARM library. Define all the vaults the same way that they are defined in CA-TLMS.

Be sure to define sufficient capacity to accommodate the maximum number of volumes that can reside simultaneously in each vault. This capacity must be defined for each media type that is to be kept in this vault.

Step 11: Define Scratch Pools and Related Rules

If scratch pools are defined in your CA-TLMS system, rules must be created in CONTROL-M/Tape to identify them and the datasets that are assigned to those pools.

Use the following steps to convert scratch pool information at your site:

- 1 Analyze the pool information that has been defined for CA-TLMS.
 - For CA-TLMS version 5.3, check the pool information tables in members TLMSRTAB and TLMSVTAB in the CAISRC library.
 - For CA-TLMS version 5.4, use system option POOLID in member TLMSIPO of the CAIPPOPTION library to dynamically build user table TLMSPTAB. This table contains the definitions of the tape pools managed by CA-TLMS.
- 2 Define CONTROL-M/Tape pools that are identical to those defined in CA-TLMS, by the Pool Definition screen (screen TP). Select the member that was allocated for pool definitions during CONTROL-M/Tape installation (Default: member \$\$POOL in the CONTROL-M/Tape PARM library).
- 3 Define CONTROL-M/Tape rules that identify the datasets to be restricted to each pool. Use the DO POOL statement in these rules to specify dataset names, groups, job names, or program names that must be used to determine the datasets for each pool.

NOTE



During this step, you may create pool assignment rules that reference datasets for which other rule definitions were already created (by previous conversion steps). The recommended default value for parameter CONTINUE SEARCH in CONTROL-M/Tape rule definitions created during conversion is N. Therefore, only one rule would normally be triggered for each dataset being processed.

To ensure that each pool assignment rule is triggered for all relevant datasets, specify a higher priority than the default in RLDPRTY (in Step 1) and specify Y in the CONTINUE SEARCH field for these rules.

Step 12: Adjust Rule List

After the CONTROL-M/Tape rule definition tables have been created in job CONVTRMF and Step 11, they must be specified to CONTROL-M/Tape by member RULLIST in the CONTROL-M/Tape PARM library. This member contains the list of tables to be loaded into memory when CONTROL-M/Tape is activated. In member RULLIST, enter a new line for each Rule Definition table (e.g., VMFRULE, POOLRULE) created. Copy the format of the rule tables already listed in this member.

Verify that the Vault Definition table and Pool Definition table (members \$\$VAULT and \$\$POOL in the CONTROL-M/Tape PARM library) are specified in DD statements DAVLTS and DAPOOLS, respectively, in procedure CTTINIT.

Step 13: Apply Vault Rules

This step consists of job CONVVTM that applies the Vault Rule definitions created in Step 8. Job CONVVTM runs utility CTTVTM with the MODE=CONVERT expression included in the TYPEVLT statement. During this run of utility CTTVTM:

- rule definitions are loaded
- vault patterns for each volume are recalculated
- slot and box records are built

For more information about utility CTTVTM, see the CONTROL-M/Tape chapter of the *INCONTROL for z/OS Utilities Guide*.

Check the results of job CONVVTM. The distribution report generated by utility CTTVTM lists all volumes that need to be moved as a result of this run of the utility. This report should be empty, indicating that no volumes need to be moved. If it is not empty, check the vaulting rules for the volumes listed in the report.

NOTE



The report may indicate volume movement within a vault (e.g., a volume moving from one slot in a specific vault to another slot in the same vault). This situation is normal and may only reflect differences in slot management between CA-TLMS and CONTROL-M/Tape.

Step 14: Apply Retention Rules

This step consists of job CONVTRTM that runs utility CTTRTM with the MODE=CONVERT expression included in the TYPERET statement. In this mode, no retention action is performed. This mode is used to update retention information in the Media Database. For more information about utility CTTRTM, see the CONTROL-M/Tape chapter of the *INCONTROL for z/OS Utilities Guide*.

Submit the job and check the results of the run. The job must end with a condition code of 0.

No expiration should be performed during this run of utility CTTRTM. If the Scratch report produced by the utility lists volumes that were expired as a result of the run, determine why this occurred, and correct any detected errors.

Step 15: Verify Media Database Integrity

This step consists of job CONVIDB that runs utility CTTIDB after the conversion to verify the integrity of the Media Database. For more information about utility CTTIDB, see the CONTROL-M/Tape chapter of the *INCONTROL for z/OS Utilities Guide*. CTTIDB issues messages if database inconsistencies are detected. Examples of such inconsistencies are:

- Errors in chain links that connect volumes in a multi-volume chain
- Active volumes that do not contain datasets
- Scratch volumes that contain active datasets
- Discrepancies between Media Database records

If utility CTTIDB reports errors, it might indicate problems that were overlooked or missed while cleaning up the CA-TLMS VMF. If this is the case, correct the original data and repeat the conversion process from Step 4 (Format Media Database). You can also correct problems directly in the CONTROL-M/Tape Media Database. For more information about utility CTTIDB, see verifying media database integrity chapter of the *CONTROL-M/Tape Implementation Guide*, and the CONTROL-M/Tape chapter of the *INCONTROL for z/OS Utilities Guide*.

Utility CTTIDB also generates Media Database statistics that can be used for comparison with the CA-TLMS VMF. The statistics provided include:

- Number of used data records
- Number of used index records
- Number of free data records
- Number of free index records
- Total number of records according to type, that is, volume, dataset, or scratch)

For information about the structure of the Media Database, such as data records and index records, see the CONTROL-M/Tape chapter of the *INCONTROL for z/OS Administrator Guide*.

Step 16: Resume Tape Activity

Tape activity can now be resumed.

Start CONTROL-M/Tape with the following command:

```
S CTTI NI T, PARM=' MODE=I NI T'
```

If CA-TLMS was stopped, it must also be started at this time.

Step 17: Final Adjustments

The CONTROL-M/Tape New Day procedure (CTTDAY) performs daily maintenance on the CONTROL-M/Tape Media Database and related files. To ensure compatibility with CA-TLMS, replace member CTTDAY in the JCL library with member CTTDAYT. Job CTTDAYT performs vault processing (CTTVTM) before retention processing (CTTRTM).

CA-TLMS allows specification of JCL parameter SPACE=(1,(1,1)), in place of EXPDT=98000, to bypass tape management. If you are using this parameter, implement sample Exit CTTX003J (located in the IOA SAMPEXIT library) to support JCL parameter SPACE=(1,(1,1)) and to ensure compatibility between CONTROL-M/Tape and CA-TLMS tape management.

Step 18: Collect Statistics for Stacking

This step consists of job CONVSTK that runs utility CTTSTK to collect dataset statistics from the CONTROL-M/Tape Media Database. This statistical information is used by the CONTROL-M/Tape Dynamic Dataset Stacking facility. This job must run with MODE set to MDB.

NOTE



This step is relevant only if you are converting from CA-TLMS version 5.3. Statistical information is not available for dataset records converted from CA-TLMS version 5.4.

Submit job CONVSTK. Check the results. All steps must end with a condition code of 0. Depending on the size of your Media Database, this utility may run for a long time.

For more information about collection of dataset statistics, see utility CTTSTK in the *INCONTROL for z/OS Utilities Guide*.

For more information about dataset stacking, see the dataset stacking chapter of the *CONTROL-M/Tape Implementation Guide*.

Conversion from CA-EPIC/MVS

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Overview

This chapter describes the CA-EPIC/MVS to CONTROL-M/Tape conversion process. A brief description of the differences between CA-EPIC/MVS and CONTROL-M/Tape is followed by detailed conversion steps.

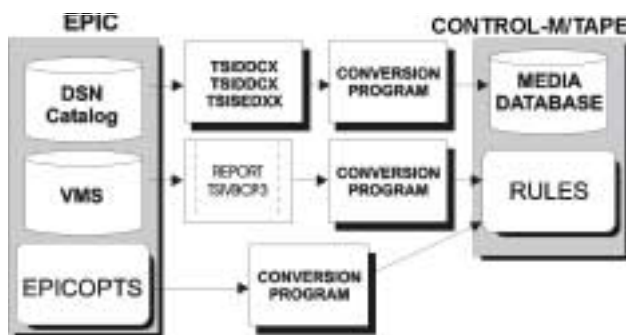
Each tape dataset is recorded in a Detail record in the DSN Catalog. CA-EPIC/MVS defines retention criteria for each dataset name in a Dataset Definition (EDD) Master Record of the DSN Catalog. CA-EPIC/MVS file EPICOPTS defines tape pools, global options, and other features that allow special handling of dataset groups.

The CA-EPIC/MVS Vault Management System (VMS) manages all tape storage vaults. The VMS uses the VMS Catalog and the DSN Catalog to determine which tape volumes must move to which vaults.

CONTROL-M/Tape volume and dataset information is stored in the CONTROL-M/Tape Media Database (MDB). When a dataset is created, CONTROL-M/Tape records the dataset attributes in a dataset record in the Media Database and updates the appropriate volume record. Dataset access is tracked in both records. Each time a dataset is accessed or created, CONTROL-M/Tape searches for user-defined rules that indicate what action must be taken. As CONTROL-M/Tape rules are processed, changes to media management attributes, such as vault patterns and retention periods, are updated in the Media Database.

The following diagram indicates how major CA-EPIC/MVS components are converted to CONTROL-M/Tape format.

Figure 11 Conversion of CA-EPIC/MVS Components to CONTROL-M/Tape



DSN Catalog and VMS Catalog Cleanup

The CA-EPIC/MVS DSN Catalog contains volume and dataset information that is used to manage the tape library.

The VMS Catalog contains information about CA-EPIC/MVS Vault management.

To avoid propagating errors to the CONTROL-M/Tape Media Database, ensure that the DSN Catalog and the VMS Catalog are free of errors, such as chaining problems or dead volume entries, before conversion. The CA-EPIC/MVS utilities listed in [Table 20](#) can be used to help clean these files.

Table 20 CA-EPIC/MVS Utilities Used to Clean DSN and VMS Catalogs

Utility	Description
TSIDDSU	Automatically expires dataset versions and scratch tapes (using option SCRATCH), and produces a report describing errors in the DSN Catalog.
TSIVBUTL	Purges, deletes, and reorganizes information in the VMS Catalog.

For more information about cleanup of CA-EPIC/MVS tape library information, see [“CA-EPIC/MVS Conversion Process” on page 82](#), and your CA-EPIC/MVS documentation.

Volume Ranges

CONTROL-M/Tape requires definition of a range of volume serial numbers (volser) for each media type before it generates volume records. Volumes in the DSN Catalog that are not within the ranges specified to CONTROL-M/Tape are not added to the CONTROL-M/Tape Media Database. Make an inventory of all active volume ranges in your data center. Use this inventory as a reference when specifying volume ranges to CONTROL-M/Tape during conversion.

Retention, Pool, and Vault Definitions

The conversion tool creates three separate members containing CONTROL-M/Tape rules. Each member is generated from one of the following:

- CA-EPIC/MVS Vaulting rules (VMS Catalog)
- CA-EPIC/MVS member EPICOPTS
- CA-EPIC/MVS Master records (DSN Catalog)

All CONTROL-M/Tape rules have the same format and use the same set of parameters to define actions, scheduling criteria etc. After CONTROL-M/Tape implementation has been completed and CONTROL-M/Tape is running in production mode, rules created during conversion can be combined so that retention, vaulting, and pool specifications are described in the same rules.

Retention Management

CA-EPIC/MVS stores retention information for tape datasets in the DSN Catalog and in member EPICOPTS.

OPTION SELECT statements, in member EPICOPTS, are used to define retention criteria for groups of datasets. These statements are checked each time a dataset is automatically cataloged.

- If a match is found, the matching information in the table is used.
- If a match is not found, global default values are used.

Individual datasets not belonging to any group are defined manually in the DSN Catalog.

During the conversion process, the conversion tool automatically converts CA-EPIC/MVS Retention Policies (from both the EPICOPTS member in the startup library and the EDD records in the DSN Catalog) to CONTROL-M/Tape rule definitions. The conversion from EDD records is performed in two steps to allow for manual deletion of “unneeded” statements before they are converted to CONTROL-M/Tape rules. Each set of converted rules is placed in a separate table and identified with a specified prefix.

Vault Management

CA-EPIC/MVS manages tape vaults and movement of tape volumes by using the Vault Management System (VMS). Vault definitions and vault requests (rules) are stored in the VMS Catalog.

The conversion tool automatically converts vault rule and selection criteria from the VMS Catalog to CONTROL-M/Tape rules.

Pool Management

CA-EPIC/MVS tape pool management allows ranges of tape volumes to be defined as tape pools. Each pool has a one-character pool ID and is assigned one or more volser ranges. Tape pool names and volume ranges assigned to pools are defined with option TAPEPOOL in member EPICOPTS in the SYS1.PARMLIB library. Datasets are assigned to tape pools in either a Dataset Definition (EDD) record in DSN Catalog or in OPTION or OPTION SELECT statements in member EPICOPTS.

The conversion tool automatically converts CA-EPIC/MVS pool assignments to CONTROL-M/Tape rules. After these rules are created, the tape pools specified in these rules must be defined to CONTROL-M/Tape.

For more information about definition of tape pools, see the online facilities chapter of the *CONTROL-M/Tape User Guide*.

External Data Manager

CONTROL-M/Tape can track tape volumes that are managed by an External Data Manager (EDM) such as DFSMSHsm or CA-Disk. If EPIC interfaces with an EDM at your site, CONTROL-M/Tape rules must be defined to identify the relevant datasets as EDM controlled. Use the Rule Definition screen (Screen TR) to specify EDM datasets to CONTROL-M/Tape.

For CA-EPIC/MVS version 3.2 and later, EDM-controlled datasets are defined with parameter EDMPFX in member EPICOPTS in the SYS1.PARMLIB library.

Inventory Management Utilities

The utilities and programs involved in the various inventory management processes of CA-EPIC/MVS are listed in the chart below, along with the equivalent utilities in CONTROL-M/Tape.

Table 21 CA-EPIC/MVS Utilities and Equivalent CONTROL-M/Tape Utilities

CA-EPIC/MVS	Description	CONTROL-M/Tape
EPIC	Initialization utility	CTTINIT
TSIDDSU SCRATCH option	Retention management and Tape management database integrity checking	CTTIDB CTTRTM
TSIDINIT	Tape volume initialization	CTTTPI
TSIVB1xx-TSIVB6xx	Vault management	CTTVTM

CA-EPIC/MVS Conversion Process

The process of conversion from CA-EPIC/MVS to CONTROL-M/Tape includes:

- Executing CA-EPIC/MVS utilities.
- Modifying vault, pool and rule definitions in CONTROL-M/Tape.
- Running CONTROL-M/Tape jobs.

The steps required for CA-EPIC/MVS to CONTROL-M/Tape conversion are described in detail in the remainder of this chapter. The conversion steps are accessed by the INCONTROL Installation and Customization Engine (ICE).

Use the following steps to begin conversion from CA-EPIC/MVS to CONTROL-M/Tape.

- 1** Enter ICE as described in the ICE chapter of the *INCONTROL for z/OS Installation Guide*.
- 2** In the Major Step Selection screen, type **CTT** in the product field, select “INSTALL CTx” (ICE option 3) from the IOA installation menu, and press **Enter**. The CONTROL-M/Tape installation menu is displayed.
- 3** Choose major step 15 “Conversion from CA-EPIC/MVS.”

The following screen is displayed:

Figure 12 ICE Screens for Converting CA-EPIC/MVS to CONTROL-M/Tape

----- Minor Steps Selection -----				
Environment: IOA610 Product: CTT				
Major Step: 15 Conversion from EPIC/MVS				
Sel values: S Select step C Mark step as completed R Reset status				
B Browse Step X Mark step as excluded ? Help				
PF7/PF8 To scroll through all Steps				

Sel	Step	Status	Type	Opt Description
===	====	=====	=====	=====
.	1		Edi t	R Set Conversion Parameters
.	2		Job	R Compile and Link Conversion Programs
.	3		Extrnl	Stop Tape Activity
.	4		Job	Format Media Database
.	5		Job	Convert the EPIC Vaulting Rules
.	6		Job	Convert Member EPICOPTS to Rules
.	7		Extrnl	Conversion of Master Records to Rules
.	8		Job	Produce an EPIC DSN Catalog Report
.	9		Job	Alloc. File for OPTION SELECT Statements
.	10		Job	Convert Master Records to OPTION SELECT
.	11		Extrnl	Edit the OPTION SELECT Statements File
.	12		Job	Convert OPTION SELECT Stmts. to Rules
.	13		Extrnl	Define External Data Manager Rules
.	14		Extrnl	R Adjust Rule List
.	15		Extrnl	Define Vaults
.	16		Extrnl	Y Define Scratch Pools
.	17		Job	Convert EPIC DSN Catalog into MDB
.	18		Job	Apply Vault Rules
.	19		Job	Apply Retention Rules
.	20		Job	Verify Media Database Integrity
.	21		Extrnl	Resume Tape Activity
.	22		Job	Y Collect Statistics for Stacking
-----> End of Minor Steps <-----				

ICE screens can be used to check and record your progress during conversion, and to run some of the jobs performed during certain conversion steps.

If you are not yet familiar with ICE, BMC Software recommends that you review the ICE chapter of the *INCONTROL for z/OS Installation Guide*.

Procedure Table

The conversion process consists of the following operations:

Table 22 Steps in the CA-EPIC/MVS Conversion Process

Step	Operation	Job/Screen/External Event
1	Set Conversion Parameters	Edit
2	Compile and Link Conversion Programs	CONVEASM
3	Stop Tape Activity	External Event
4	Format Media Database	CONVFMDB
5	Convert the EPIC Vaulting Rules	CONVEVLR
6	Convert Member EPICOPTS Into Rules	CONVERUL
7	Convert Master Records Into Rules	Information step
8	Produce EPIC DSN Catalog Report	CONVEREP
9	Allocate File to Hold OPTION SELECT Statements	CONVEMS1
10	Convert Master Records to OPTION SELECT Statements	CONVEMS2
11	Edit OPTION SELECT Statements File	Edit
12	Convert OPTION SELECT Statements to CONTROL-M/Tape Rules	CONVEMS3
13	Define External Data Manager (EDM) Rules	Rule Definition screen
14	Adjust Rule List	Edit
15	Define Vaults	Vault Definition screen
16	Define Scratch Pools	Pool Definition screen
17	Convert EPIC DSN Catalog Report to CONTROL-M/Tape Media Database	CONVEMDB
18	Apply Vault Rules	CONVVTM
19	Apply Retention Rules	CONVTRTM
20	Verify Media Database Integrity	CONVIDB
21	Resume Tape Activity	External Event
22	Collect Statistics for Stacking	CONVSTK

NOTE



If you are currently performing a reconversion, that is, this is not the first time you are running the CONTROL-M/Tape conversion process, only steps 3, 4, 8, and 17 through 22 are mandatory. Other steps may or may not be necessary, depending on what has been modified since the previous conversion.

Step 1: Set Conversion Parameters

Before running the conversion jobs, several conversion parameters must be modified to match your site standards. The conversion parameters are listed in the CTTEPCDF member in the IOA MAC library. These parameters specify default values for the rules created during the conversion. Change the default values of these parameters only if it is necessary for compatibility with your site's rule naming conventions:

Table 23 Conversion Parameters in The CTTEPCDF Member (part 1 of 2)

Parameter	Description
RLDRETN	Prefix for CONTROL-M/Tape retention rules generated from OPTION SELECT statements in member EPICOPTS of the SYS1.PARMLIB library. The name of each CONTROL-M/Tape retention rule is comprised of this prefix and a sequential number. Up to three characters can be specified for this field. Default: RET
RLDGROP	Group name for CONTROL-M/Tape rules created during conversion. A Group name is a descriptive name for a group of rules. Up to twenty characters can be specified for this field. Default: EPIC-RULES
RLDGUID	User ID (OWNER) for CONTROL-M/Tape rules generated during conversion. The OWNER field is mandatory for all rules and can be useful during implementation of CONTROL-M/Tape security. Up to eight characters can be specified for this field. Default: CTTCONV
RLDPRTY	Rule sequence priority for rules created by the conversion programs. The order in which the rules are scanned is very important for rule processing. Sequence priority controls the order in which rules are scanned. When CONTROL-M/Tape searches for a rule, the first rule that matches the selection criteria is activated. Priority is determined in ascending order where blank < A < Z < 0 < 9. For details about order of rule processing, see the organization and administration chapter of the <i>CONTROL-M/Tape User Guide</i> . This field contains two characters. Default: 00 (medium priority)
RLDCNSR	Value for the CONTROL-M/Tape CONTINUE SEARCH field. This field determines whether or not CONTROL-M/Tape searches for additional rules that match a dataset currently being processed. Specify Y (Yes) for this parameter to ensure compatibility with CA-EPIC/MVS. <ul style="list-style-type: none"> ■ Y – Continue search. Default. ■ N – Do not continue search.

Table 23 Conversion Parameters in The CTTEPCDF Member (part 2 of 2)

Parameter	Description
RLDPRFX	<p>Indicates whether or not dataset names specified for datasets with CYCLE type retention must be used as prefixes that identify different generations (cycles) of the dataset. This parameter indicates the value for subparameter PREFIX in DO RETENTION statements of CONTROL-M/Tape rules created by the conversion. For more information, see DO RETENTION in the rule parameters chapter of the <i>CONTROL-M/Tape User Guide</i>. Valid values are:</p> <ul style="list-style-type: none"> ■ Y – Consider datasets with the same prefix as different generations of the same dataset. ■ N – Ignore specified prefixes, and identify each dataset by its full name. Default.
RLDMODE	<p>Rule operation mode. When a rule is executed in Test mode, information is recorded in the Media Database but CONTROL-M/Tape does not perform any actions.</p> <p>If TEST is specified for CONTROL-M/Tape installation parameter MODE, all rules are run in Test mode (i.e., Global Test mode overrides any rule specific production mode). It is recommended that you not modify the default value for this parameter.</p> <ul style="list-style-type: none"> ■ P – Production mode. Default. ■ T – Test mode.
RLDDDESC	<p>A free-text rule description to be inserted in the DESCRIPTION field of each rule created by the conversion tool. This field can contain a maximum of 61 characters.</p> <p>Default: CONVERTED FROM EPIC RULES.</p>

Step 2: Compile and Link Conversion Programs

This step consists of job CONVEASM, which compiles and links the following conversion programs:

Table 24 Conversion Programs Compiled and Linked by Job CONVEASM (part 1 of 2)

Program	Description
CTTCEPC	Converts CA-EPIC/MVS DSN Catalog records to CONTROL-M/Tape Media Database records.
CTTCEPD	Produces a report that describes CA-EPIC/MVS volume chains.
CTTCEPM	Converts CA-EPIC/MVS Master Records to CONTROL-M/Tape rules.
CTTCEPR	Converts EPICOPTS rules to CONTROL-M/Tape rules.

Table 24 Conversion Programs Compiled and Linked by Job CONVEASM (part 2 of 2)

Program	Description
CTTCEPV	Converts CA-EPIC/MVS VMS records to CONTROL-M/Tape rules.
TSIDEDXX	Sample CA-EPIC/MVS report exit. This exit creates a sequential output file from the DSN Catalog that is used by the conversion programs.

Submit job CONVEASM. All job steps must end with a condition code of 0.

Step 3: Stop Tape Activity

Stop all tape activity. If CONTROL-M/Tape is active, bring it down with the following command:

```
S CTTI NI T, PARM='MODE=TERM'
```

BMC Software recommends that you bring down CA-EPIC/MVS at this time.



WARNING

If CA-EPIC/MVS is not brought down at this time, information about datasets processed after production of the CA-EPIC/MVS DSN Catalog report (in Step 8) is not incorporated into the CONTROL-M/Tape Media Database that is produced by the conversion tool.

Step 4: Format Media Database

If the CONTROL-M/Tape Media Database exists, run the CONVFMDB job to reformat it and remove all old data. If the Media Database does not exist, run the CTTCMDB job to allocate a new one.

All job steps must end with a condition code of 0.

Step 5: Convert the CA-EPIC/MVS Vaulting Rules

This step consists of the CONVEVLR job that converts CA-EPIC/MVS vaulting policies to CONTROL-M/Tape rule definitions. Job CONVEVLR does the following:

- Runs CA-EPIC/MVS VMS utility TSIVBCP3 to create a report that lists all VMS selection criteria records and rules, and box, case, and pallet definitions.

- Runs conversion program CTTCEPV to convert the data produced by utility TSIVBCP3 into rules in the CONTROL-M/Tape Rule Definition library.

Before running the CONVEVLR job, use CA-EPIC/MVS utility TSIVBUTL to purge, delete, and reorganize the VMS Catalog as necessary. The VMS Catalog must be free of records marked for deletion and history records for tapes that have completed their vaulting cycle.

In the CONVEVLR job, specify the name of the member to contain the converted rules in parameter RULEMEM (in step VMS) of this job. The CONTROL-M/Tape Rule Definition library (specified in the RULELIB parameter) is allocated during CONTROL-M/Tape installation.

Run the job.

All steps must end with a condition code of 0.

Do not change the rule definitions created in this step until after jobs CONVVTM and CONVTRTM in Steps 18 and 19 have been run. This helps ensure compatibility between the CONTROL-M/Tape Media Database and CA-EPIC/MVS tape library.

Step 6: Convert Member EPICOPTS to Rules

This step consists of the CONVERUL job that converts OPTION SELECT statements and OPTION statements in member EPICOPTS to CONTROL-M/Tape rule definitions.

- 1 Edit this job as follows:
- 2 Specify the active EPICOPTS member in DD statement EPICOPTS in STEP01 of this job.
- 3 Specify the rule member name to contain the converted rules in parameter RULEMEM in step OPTS of this job.

To ensure that retention information in the JCL is applied in the same way as in CA-EPIC/MVS, verify that the setting for CONTROL-M/Tape installation parameter OVERJCL is consistent with CA-EPIC/MVS parameter JCLOVRDE.

Run job CONVERUL.

All steps must end with a condition code of 0.

Do not change the rule definitions created in this step until after jobs CONVVTM and CONVTRTM in Steps 18 and 19 have been run. This helps ensure compatibility between the CONTROL-M/Tape Media Database and CA-EPIC/MVS information in the DSN catalog and the VMS catalog.

Step 7: Conversion of Master Records to Rules

This step is for information purposes only. It serves as an introduction for steps that follow.

Master Records in the CA-EPIC/MVS DSN Catalog contain rules for retention and pool management of created datasets. The conversion tool converts these rules to CONTROL-M/Tape rules using Steps 8 through 12.

Table 25 Conversion of Master Records to CONTROL-M/Tape Rules Using Steps 8 through 12

Step	Description
8	Creates a sequential file from the master records in the DSN Catalog using the CA-EPIC/MVS Data Extract and Report Writer (DERW).
9	Allocates a file to hold OPTION SELECT statements created in the next step.
10	Converts Master Records to equivalent OPTION SELECT statements if they specify different retention criteria than the rules created from the EPICOPTS in Step 6.
11	Manual edit of the OPTION SELECT statements created in the previous step. Use this step to delete outdated or unused rules and to merge statements for similar datasets into generic statements with masking characters.
12	Converts the new OPTION SELECT statements to CONTROL-M/Tape rules.

Step 8: Produce a CA-EPIC/MVS DSN Catalog Report

This step consists of job CONVEREP that produces a sequential output file from DSN Catalog Master Records and Detail Records. Job COVNEREP activates the CA-EPIC/MVS Data Extract and Report Writer program TSIDDCX and report Exit TSIDEDXX.

The file created during this step is composed of the following types of records:

Table 26 Records in CA-EPIC/MVS DSN Catalog Report

Record	Description
Master Records	Converted to CONTROL-M/Tape rules in subsequent steps.
Detail Records	Converted to volume and dataset records in the CONTROL-M/Tape Media Database by subsequent steps.

NOTE

Before running job CONVEREP, it is important to verify that the DSN Catalog has been cleaned of integrity problems using CA-EPIC/MVS utility TSIDDSU. Use the SCRATCH option of this utility to ensure that tapes are scratched and datasets are expired as necessary.

Run job CONVEREP.

All job steps must end with a condition code of 0.

Step 9: Allocate a File to Hold OPTION SELECT Statements

This step consists of running the CONVEMS1 job, which creates a file for the OPTION SELECT statements generated from the Master Records in the CA-EPIC/MVS DSN Catalog (in the next step).

All job steps must end with a condition code of 0.

Step 10: Convert Master Records to OPTION SELECT Statements

This step consists of job CONVEMS2 that converts Master Records in the DSN Catalog to OPTION SELECT statements.

Master Records that have parallel OPTION SELECT statements in member EPICOPTS do not need to be converted. Therefore, this job converts only Master Records that contain retention criteria that differs from the retention criteria in the original OPTION SELECT statements, that is, those that were converted in Step 6.

Job CONVEMS2 accesses the report produced by Exit TSIDEDXX in Step 8 and the CONTROL-M/Tape rule definitions created in Step 6 to compare the information contained in them. This information is compared in order to determine that Master Records contain new information that must be converted.

Run job CONVEMS2.

All job steps must end with a condition code of 0.

Step 11: Edit OPTION SELECT Statements File

Review and edit the OPTION SELECT statements generated in the previous step. These statements are located in the file referenced by DD statement DAOPTS in job CONVEMS2, which was run in Step 10.

1. Delete statements for datasets that will never be referenced, for example, dataset names containing old dates or times.
2. Delete statements for datasets created with a retention specified through JCL parameter EXPDT when the CA-EPIC/MVS installation parameter JCLOVRDE was set to YES.
3. Use mask characters (* and ?) to combine statements with similar parameters. (For an explanation of mask characters, see the discussion of character masking in the online facilities chapter of the *CONTROL-M/Tape User Guide*.)

Example 1

The following SELECT statements:

```
OPTION SELECT DSN=A. B. FILE1, RET=30, CYC=0, DLA=0, MVSCAT=NO
OPTION SELECT DSN=A. B. FILE2, RET=30, CYC=0, DLA=0, MVSCAT=NO
OPTION SELECT DSN=A. B. FILE3, RET=30, CYC=0, DLA=0, MVSCAT=NO
```

can be replaced with the following statement, which uses masking:

```
OPTION SELECT DSN=A. B. FILE?, RET=30, CYC=0, DLA=0, MVSCAT=NO
```

NOTE



A.B.FILE? may select datasets beside A.B.FILE1, A.B.FILE2, and A.B.FILE3. For example, if you have a dataset named A.B.FILE9 to which you want to assign a retention other than 30 days, the statement above would not be appropriate.

Example 2

The following SELECT statements:

```
OPTION SELECT DSN=C. D. MYFILE, RET=7, CYC=0, DLA=0, MVSCAT=NO
OPTION SELECT DSN=C. D. YOURFILE, RET=7, CYC=0, DLA=0, MVSCAT=NO
```

can be replaced with the following statement, which uses masking:

```
OPTION SELECT DSN=C. D. *, RET=7, CYC=0, DLA=0, MVSCAT=NO
```

NOTE



C.D.* may select datasets beside C.D.MYFILE and C.D.YOURFILE. For example, if you have a dataset named C.D.OURFILE to which you want to assign a retention other than 7 days, the statement above would not be appropriate.

Step 12: Convert OPTION SELECT Statements to CONTROL-M/Tape Rules

This step consists of job CONVEMS3 that converts OPTION SELECT statements (generated in the previous step) to CONTROL-M/Tape rules. This job runs conversion program CTTCEPR that converts this data to CONTROL-M/Tape rules in the CONTROL-M/Tape Rule Definition library.

Before running this job, specify the name of the member to contain the converted rules in parameter RULEMEM in step OPTS of this job.

Run job CONVEMS3.

All steps must end with a condition code of 0.

Do not change the rule definitions created in this step until after jobs CONVVTM and CONVTRTM in Steps 18 and 19 have been run. This helps ensure compatibility between the CONTROL-M/Tape Media Database and CA-EPIC/MVS information in the DSN catalog and the VMS catalog.

Step 13: Define External Data Manager Rules

If an External Data Manager, such as DFSMSHsm, or CA-Disk) is defined in your CA-EPIC/MVS system, rules must be created in CONTROL-M/Tape to identify as EDM-controlled datasets before continuing with the conversion process.

NOTE



For CA-EPIC/MVS version 3.2 and later, EDM-controlled datasets are defined using parameter EDMPIX in member EPICOPTS in the SYS1.PARMLIB library. They are identified by the name of the EDM program that creates the dataset.

Use the CONTROL-M/Tape Rule Definition screen (Screen TR) to identify EDM-controlled datasets.

For each EDM dataset or group of datasets:

- Enter the relevant job name and dataset name as selection criteria.
- Enter the DO RETENTION=EDM statement.
- Enter a priority for the rule that is equal to or higher than the priority specified in parameter RLDPRY in Step 1.
- Set CONTINUE SEARCH to Y to ensure that retention definitions in other relevant rules are applied.

A separate rule table (member) in the CONTROL-M/Tape RULES library must be created for EDM datasets.

Step 14: Adjust Rule List

Four separate CONTROL-M/Tape Rule tables are normally created during Steps 1 through 13 (described above). These tables must be specified to CONTROL-M/Tape through member RULLIST in the CONTROL-M/Tape PARM library. This member contains the list of tables to be loaded into memory when CONTROL-M/Tape is activated.

Each time a dataset is accessed or created, CONTROL-M/Tape searches the loaded rule tables for a rule that matches the current dataset. The tables are searched in the same order as they are listed in member RULLIST.

If a CONTROL-M/Tape rule that is triggered by access of a specific dataset does not specify retention criteria for the dataset, CONTROL-M/Tape continues to search for rules that match the current dataset, regardless of the setting for parameter CONTINUE SEARCH. For this reason, the order of the rule tables in member RULLIST is especially important. After conversion and initial testing, rule definitions can be merged for each dataset or merged into generic rules to optimize CONTROL-M/Tape performance.

Enter the new lines in member RULLIST for rule tables created during conversion (from CA-EPIC/MVS) in the following order:

Table 27 New Lines to Add to Member RULLIST

Line	Information
First Line	Rule table containing EDM rules created in Step 13. Default name: EDMRULE
Second Line	Rule table containing vaulting rules created in Step 5. Default name: VLTRULE
Third Line	Rule table containing rules converted from Master Records created in Step 12. Default name: MSTRRULE
Fourth Line	Rule table containing rules converted from member EPICOPTS created in Step 6. Default name: OPTSRULE

Step 15: Define Vaults

Verify that the Vault Definition table member is specified in DD statement DAVLTS in procedure CTTINIT. This member should have been defined to CTTINIT during CONTROL-M/Tape installation. The default name for the Vault Definition Table member is \$\$VAULT in the CONTROL-M/Tape PARM library.

Define vaults to CONTROL-M/Tape that match the vaults that are defined to CA-EPIC/MVS (in the VMS Catalog).

Enter the CONTROL-M/Tape Vault Definition screen (TV). Select the member that was allocated for vault definitions during CONTROL-M/Tape installation. (Default: \$\$VAULT in the CONTROL-M/Tape PARM library.) Define all the vaults the same way that they are defined in the VMS Catalog (including capacity and slot information). If capacity is not specified for a vault, CONTROL-M/Tape Slot Management will not be active for that vault.

Step 16: Define Scratch Pools

Tape pools specified in CA-EPIC/MVS must be defined to CONTROL-M/Tape after the DSN Catalog Master Records and EPICOPTS member options are converted to CONTROL-M/Tape rules. For information about the pools defined to CA-EPIC/MVS, see OPTION TAPEPOOL statements in member EPICOPTS.

Verify that the Pool Definition table member is specified in DD statement DAPOOLS in procedure CTTINIT. This member should have been defined to CTTINIT during CONTROL-M/Tape installation. The default name for the Pool Definition Table member is \$\$POOL in the CONTROL-M/Tape PARM library.

Define pools to CONTROL-M/Tape through the Pool Definition screen (Screen TP). Select the member allocated during installation for pool definitions. Define pools identical to those defined in CA-EPIC/MVS.

Step 17: Convert the CA-EPIC/MVS DSN Catalog Report to the Media Database

This step consists of job CONVEMDB that extracts information from the CA-EPIC/MVS DSN Catalog report (generated in Step 8), and uses this information to create volume and dataset records for the CONTROL-M/Tape Media Database.

The following programs are executed by job CONVEMDB.

Table 28 Programs Executed by Job CONVEMDB

Program	Description
CTTCEPC	Extracts data from the CA-EPIC/MVS DSN Catalog report to a general work file called VWR. The VWR file contains all volume and dataset information necessary for building volume and dataset records in the CONTROL-M/Tape Media Database. This program must end with condition code 0. If it ends with a condition code other than 0, resolve the errors indicated by issued messages, and rerun job CONVEMDB.
CTTDLD5	Loads volume and dataset records from the VWR file into the data component of the Media Database. This program must end with a condition code of 0. If program CTTDLD5 ends with a non-zero condition code, check the error messages, correct the indicated problems and, if necessary, rerun job CONVEMDB.
CTTBIX	Builds index records for the CONTROL-M/Tape Media Database. This program must end with a condition code of 0. Condition code 8 indicates that errors were detected but the utility continued and the Media Database Index file was built successfully. The inconsistencies indicated by issued messages must be investigated and manually corrected.

Before submitting the job, specify the ranges of volumes used at your site in DD statement SYSIN. Volumes in the CA-EPIC/MVS DSN Catalog that are not within the ranges specified to CONTROL-M/Tape will not be added to the Media Database. Specify the following parameters for each RANGE statement:

Table 29 Parameters for DD Statement SYSIN RANGE Statements (part 1 of 2)

Parameter	Description
FIRST	First volume serial number in the range.
LAST	Last volume serial number in the range.

Table 29 Parameters for DD Statement SYSIN RANGE Statements (part 2 of 2)

Parameter	Description
MEDIA	Volume media type.
VENDOR	Vendor of the media (Optional).

All jobs steps must end with a condition code of 0, except STEP01, which may end with condition code 04. Check the messages in SYSPRINT file to determine if the job ended okay.

For more information about utilities CTTDLD and CTTBIX (with MODE set to CONVERT), see the CONTROL-M/Tape chapter of the *INCONTROL for z/OS Utilities Guide*.

Step 18: Apply Vault Rules

Conversion job CONVVTM applies the Vault Rule definitions created in Step 8. It runs utility CTTVTM with the MODE=CONVERT expression included in the TYPEVLT statement. During this run of the CTTVTM utility:

- rule definitions are reloaded
- vault patterns for each volume are recalculated
- slot and box records are built

For more information about the CTTVTM utility, see the CONTROL-M/Tape chapter of the *INCONTROL for z/OS Utilities Guide*.

Check the results of job CONVVTM. The distribution report generated by utility CTTVTM lists all volumes that need to be moved as a result of this run of the utility. This report should be empty, indicating that no volumes need to be moved. If it is not empty, check the vaulting rules for the volumes listed in the report.

The report may indicate volume movement within a vault (e.g., a volume moving from one slot in a specific vault to another slot in the same vault). This situation is normal and may only reflect differences in slot management between CA-EPIC/MVS and CONTROL-M/Tape. For example, when all slots are full for a specific vault, CA-EPIC/MVS assigns slot number 999999 to the volume. During conversion, CONTROL-M/Tape converts slot number 999999 to 000000. When the vaulting job CTTVTM is run, it assigns a new slot number to the volume, thus indicating movement within a vault.

Step 19: Apply Retention Rules

The CONVTRTM conversion job runs the CTTRTM utility with the `MODE=CONVERT` expression included in the `TYPERET` statement to apply retention rules for EDM controlled datasets (defined in “[Step 13: Define External Data Manager Rules](#)” on page 92). No actual expiration is performed.

NOTE



Most retention rules are applied automatically by conversion programs in previous steps.

If no datasets at your site are controlled by an External Data Manager (EDM), skip this step.

To ensure that utility CTTRTM functions on EDM controlled datasets, `INCLUDE` statements specifying jobnames of the EDM datasets must be added to the JCL for job CONVTRTM between the `TYPERET` and `REPORT` statements. Use the following format for these `INCLUDE` statements:

```
INCLUDE DSNAME=*, CREJBN=jobname
```

The following is a sample JCL for job CONVTRTM:

Figure 13 Sample JCL for Job CONVTRTM

```
//*
//*  CONTROL-M/TAPE  RETENTI ON  MANAGEMENT
//*
//CTTRTM  EXEC  CTTRTM, REGION=32M
//SYSIN DD *
TYPERUN  MODE=NORMAL, TRACE=NO
TYPERET  MODE=CONVERT
INCLUDE  DSNAME=*, CREJBN=ACCO01
INCLUDE  DSNAME=*, CREJBN=PAY001
REPORT   NAME=SCRATCH
FIELDS   VOLSER, SLNAME, MEDIA, EXPDT, LACCDT, LOCATION, POOL, CHKINDT,
          IOERR, LCLNDT
SORTBY   VOLSER
/*
//
```

Submit job CONVTRTM

The job must end with a condition code of 0. No dataset or volume expiration should be performed during this run of utility CTTRTM. If the Scratch report produced by utility CTTRTM lists volumes that have expired as a result of the run, determine why this occurred and correct any detected errors.



NOTE

Inconsistencies in the Scratch report may be due to CONTROL-M/Tape's rule search algorithm. To determine whether or not this is the cause of unexpected entries in the Scratch report at your site, check the EDM rules for the relevant volumes through the CONTROL-M/Tape Rule Definition screen (TR). For more information, see the descriptions of rule order and best match order in the organization and administration chapter of the *CONTROL-M/Tape User Guide*.

Verify that the SEQUENCE PRIORITY for EDM rules is higher than the priority specified in parameter RLDPRTY in Step 1 (described above) and that Y is specified for parameter CONTINUE SEARCH (in the EDM rules). Correct the rules and, if necessary, rerun job CONVTRTM.

For more information about utility CTTRTM, see the CONTROL-M/Tape chapter of the *INCONTROL for z/OS Utilities Guide*.

Step 20: Verify Media Database Integrity

Job CONVIDB runs utility CTTIDB to verify the integrity of the CONTROL-M/Tape Media Database. CTTIDB issues messages if database inconsistencies are detected. Examples of such inconsistencies are

- errors in links that connect volumes in a multi-volume chain
- active volumes that do not contain datasets
- scratch volumes that contain active datasets
- discrepancies between Media Database records

For more information about utility CTTIDB, see the verifying media database integrity chapter of the *CONTROL-M/Tape Implementation Guide*, and the CONTROL-M/Tape chapter of the *INCONTROL for z/OS Utilities Guide*.

If utility CTTIDB reports errors, it might indicate problems that were overlooked or missed during preparation of the CA-EPIC/MVS DSN Catalog. If this is the case, correct the original data and repeat the conversion process from Step 4 (Format Media Database). You can also correct problems directly in the CONTROL-M/Tape Media Database. For more information about manual update of the Media Database, see utility CTTMUP in the CONTROL-M/Tape chapter of the *INCONTROL for z/OS Utilities Guide*.

CTTIDB also generated Media Database statistics that can be used to compare the Media Database and the CA-EPIC/MVS DSN catalog.

The statistics provided include

- Number of used data records
- Number of used index records
- Number of free data records
- Number of free index records
- Total number of records according to type (volume, dataset, scratch)

For information about the structure of the Media Database, for example, data records and index records, see the CONTROL-M/Tape chapter of the *INCONTROL for z/OS Administrator Guide*.

Step 21: Resume Tape Activity

Tape activity can be resumed at this point.

Start CONTROL-M/Tape using the following command:

```
S CTTI NI T, PARM=' MODE=I NI T'
```

If CA-EPIC/MVS was stopped, it must also be started at this time.

Step 22: Collect Statistics for Stacking

This step consists of job CONVSTK that runs utility CTTSTK to collect dataset statistics from the CONTROL-M/Tape Media Database. This statistical information is used by the CONTROL-M/Tape Dynamic Dataset Stacking facility. This job must run with MODE set to MDB.

Submit job CONVSTK. All steps must end with a condition code of 0. Depending on the size of your Media Database, this utility may run for a long time.

For more information about utility CTTSTK, see the CONTROL-M/Tape chapter of the *INCONTROL for z/OS Utilities Guide*.

Conversion from DFSMSrmm

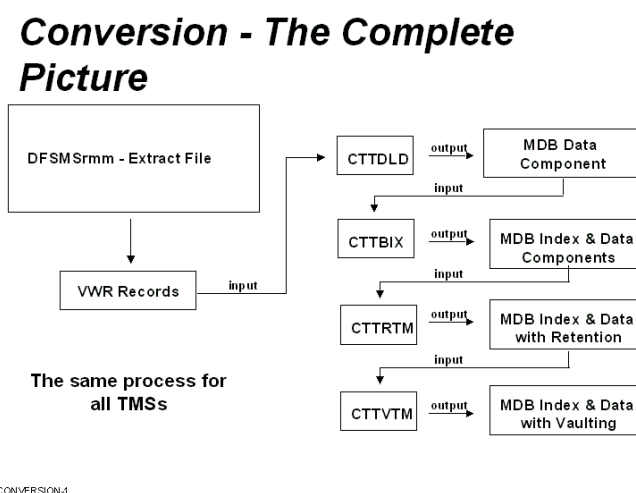
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Overview

This chapter describes the DFSMSrmm to CONTROL-M/Tape conversion process. A brief description of the differences between DFSMSrmm and CONTROL-M/Tape is followed by detailed conversion steps.

The following diagram indicates how the major DFSMSrmm components are converted to CONTROL-M/Tape format.

Figure 14 Conversion of DFSMSrmm Conversion to CONTROL-M/Tape



Clean-up

The DFSMSrmm Control Dataset stores information about tape volumes at your site. During conversion, a CONTROL-M/Tape extracts a Media Database from that information.

To avoid propagating errors to the CONTROL-M/Tape Media Database, ensure that the Control Dataset is free of errors and data discrepancies (e.g., chaining problems or dead volume entries) before conversion. Run DFSMSrmm utility EDGUTIL with parameter VERIFY(ALL) to detect errors in your Control Dataset and to correct all detected data discrepancies.

For more information about Control Dataset cleanup, see [“DFSMSrmm Conversion Process” on page 104](#), and your DFSMSrmm documentation.

Volume Ranges

CONTROL-M/Tape requires definition of a range of volume serial numbers (volser) for each media type before it generates volume records. Make an inventory of all active volume ranges in your data center. This inventory should be used as a reference when specifying volume ranges to CONTROL-M/Tape during conversion.

Volumes in the DFSMSrmm Control Dataset that are not within the ranges specified to CONTROL-M/Tape are not added to the CONTROL-M/Tape Media Database.

Retention, Pool, and Vault Rules

Retention, pool, and vault policies are defined to DFSMSrmm in the following ways:

- Online through the “Display Dataset VRS” panel
- Through user Exit EDGUX100

When tape management rules are created for CONTROL-M/Tape, both types of definitions must be considered. For more information, see [“Step 10: Convert the VRS into Rules” on page 112](#).

External Data Manager

CONTROL-M/Tape can track tape volumes that are managed by an External Data Manager (EDM) such as DFSMSHsm or CA-Disk. If DFSMSrmm interfaces with an EDM at your site, appropriate CONTROL-M/Tape rules must be defined to identify the relevant datasets as EDM controlled.

Use the Rule Definition screen to specify EDM datasets to CONTROL-M/Tape.

For more information, see [“Step 10: Convert the VRS into Rules” on page 112](#).

DFSMSrmm Conversion Process

The process of conversion from DFSMSrmm to CONTROL-M/Tape includes:

- Executing DFSMSrmm utilities.
- Editing operations.
- Running CONTROL-M/Tape jobs.
- Creating vault and/or pool definitions through the CONTROL-M/Tape Online facility.

The steps required for DFSMSrmm to CONTROL-M/Tape conversion are described in detail in the remainder of this chapter. The conversion steps are accessed by the INCONTROL Installation and Customization Engine (ICE).

Use the following steps to begin conversion from DFSMSrmm to CONTROL-M/Tape.

- 1** Enter ICE as described in the ICE chapter of the *INCONTROL for z/OS Installation Guide*.
- 2** In the Major Step Selection screen, type **CTT** in the product field, select “INSTALL CTx” (ICE option 3) from the IOA installation menu, and press **Enter**. The CONTROL-M/Tape installation menu is displayed.
- 3** Choose major step 16 “Conversion from DFSMSrmm.”

The following screen is displayed.

Figure 15 ICE Facility Screen for Converting DFSMSrmm to CONTROL-M/Tape

----- Minor Steps Selection -----				
Environment: IOA610 Product: CTT				
Major Step: 16 Conversion from DFSMSrmm				
Sel values: S Select step C Mark step as completed R Reset status				
B Browse Step X Mark step as excluded ? Help				
PF7/PF8 To scroll through all Steps				

Sel	Step	Status	Type	Opt Description
===	====	=====	=====	=====
.	1		Edit	R Set Conversion Parameters
.	2		Job	R Compile and Link Conversion Programs
.	3		Extrnl	Stop Tape Activity
.	4		Job	Format Media Database
.	5		Extrnl	Prepare DFSMSrmm Control Dataset
.	6		Job	Produce the DFSMSrmm Extract File
.	7		Job	Convert the Extract File into MDB
.	8		Extrnl	Define Vaults
.	9		Extrnl	Define Scratch Pools
.	10		Extrnl	Create CONTROL-M/Tape Rules
.	11		Extrnl	R Adjust Rule List
.	12		Job	Apply Vault Rules
.	13		Job	Apply Retention Rules
.	14		Job	Verify Media Database Integrity
.	15		Extrnl	Check Problematic Datasets and Volumes
.	16		Extrnl	Resume Tape Activity
.	17		Job	Y Collect Statistics for Stacking
-----> End of Minor Steps <-----				

NOTE



If you are not familiar with ICE, review the ICE chapter in the *INCONTROL for z/OS Installation Guide*.

To convert the DFSMSrmm Control Dataset to the CONTROL-M/Tape Media Database, perform the following steps.

Step 1: Set Conversion Parameters

Modify the conversion parameters to accord with the standards at your site.

This step allows you to edit the CTTRMMDF member in the IOA MAC library, which contains the conversion parameters.

Because these parameters are Assembler-H SETC Global variables, they must correspond to Assembler language format. For example, values must be enclosed in quotation marks, comments must be indicated by an asterisk in column one, and so on.

General Conversion Parameters

The following are the general DFSMSrmm conversion parameters.

Table 30 General DFSMSrmm Conversion Parameters

Parameter	Description
VOLRECN	Maximum number of volumes. Default: 50000
VOLCHANN	Maximum number of volume chains. Default: 30000
BADDSNN	Maximum number of invalid datasets. Default: 10000

Vault Name Parameters

DFSMSrmm typically defines three vaults:

- LOCAL
- REMOTE
- DISTANT

If you want to use different vault names in CONTROL-M/Tape, assign values to the parameters in [Table 31](#). Otherwise, the vaults are named in CONTROL-M/Tape the same way that they are named in DFSMSrmm.

Table 31 DFSMSrmm Vault Name Parameters (part 1 of 2)

Name	Description
LOCAL	Name of vault that replaces the DFSMSrmm-defined LOCAL vault. Default: LOCAL If the default is used, tapes are vaulted to the LOCAL vault both in CONTROL-M/Tape and in DFSMSrmm. If you assign this parameter a different value, all tapes vaulted in vault LOCAL in DFSMSrmm are vaulted in CONTROL-M/Tape in the vault with the name as assigned.

Table 31 DFSMSrmm Vault Name Parameters (part 2 of 2)

Name	Description
REMOTE	<p>Name of vault that replaces the DFSMSrmm-defined REMOTE vault. Default: REMOTE</p> <p>If the default is used, tapes are vaulted to the REMOTE vault both in CONTROL-M/Tape and in DFSMSrmm. If you assign this parameter a different value, all tapes vaulted in vault REMOTE in DFSMSrmm are vaulted in CONTROL-M/Tape in the vault with the name as assigned.</p>
DISTANT	<p>Name of vault that replaces the DFSMSrmm-defined DISTANT vault. Default: DISTANT</p> <p>If the default is used, tapes are vaulted to the DISTANT vault both in CONTROL-M/Tape and in DFSMSrmm. If you assign this parameter a different value, all tapes vaulted in vault DISTANT in DFSMSrmm are vaulted in CONTROL-M/Tape in the vault with the name as assigned.</p>

DUMMYDS Invalid Dataset Name Parameter

The conversion program saves to a dataset details of all data found in the DFSMSrmm database that is invalid, for example because of invalid dataset or volume information.

The default name for this dataset is DUMMY.RMM.CONVERT.DATASET, but you can use the DUMMYDS parameter to set any name you want.

The conversion program regards a volume as invalid in the following cases:

- The volume is part of a broken chain. This occurs where the volume is recorded in DFSMSrmm as the second volume of a dataset, but there is no corresponding first volume.
- The volume is marked as active, that is, it has either USER or MASTER status in DFSMSrmm, but there is no corresponding dataset for the volume.

Saving the Parameters

When you are done assigning values to the conversion parameters, save the CTTRMMDF member.

Step 2: Compile and Link Conversion Programs

This step consists of the following tasks:

1 Define EDM Datasets.

If an external data manager (EDM) is used at your site, you must modify the CTTCRM3 conversion program, by the following steps, before the job CONVRASM is run:

- A** Locate the table identified by the symbol EDMTABLE in column 1 of the CTTCRM3 member in the IOA SAMPEXIT library.
- B** Review the editing instructions that immediately precede this symbol in the member.
- C** Modify the table according to your site standards.

NOTE



If the CTTCRM3 member is modified after the CONVRASM job has been used to compile the conversion programs, changes to the EDM table in this member do not affect the conversion process. Therefore, if you make changes to the EDM table in the CTTCRM3 member, you must recompile the conversion programs, by rerunning the CONVRASM job, in order to implement the changes you have made.

- D** Define retention for EDM-controlled datasets in the CONTROL-M/Tape rules that you created during “[Step 10: Convert the VRS into Rules.](#)”

2 Define additional locations (vaults). DFSMSrmm usually defines three vaults:

- Local
- Remote
- Distant

You can now define your own additional locations.

If you do define additional locations, you must modify the CTTCRM1 program before you run the CONVRHSM job, by performing the following tasks:

- A** Locate the table LOCTABLE in column 1 of the CTTCRM1 in the IOA SAMPEXIT library.
- B** Modify the LOCTABLE table by inserting new lines defining additional vaults, in accordance with the editing instructions that you will find in that table.

3 Compile the conversion programs by submitting the CONVRASM job.

All job steps must end with a condition code of 0.

Step 3: Stop Tape Activity

- 1 If you intend to start CONTROL-M/Tape in Global Phased mode or Global Production mode, stop all tape activity during the conversion process.

Tape datasets created during and after Step 6 of the conversion process are not converted.



NOTE

Although it is not mandatory, BMC Software recommends that tape processing be halted while converting the tape management data in preparation for Global Test mode.

- 2 CONTROL-M/Tape must not be active during the conversion process. If CONTROL-M/Tape is already active, shut it down.

Step 4: Format the Media Database

- 1 Run the CONVFMDB job to format the CONTROL-M/Tape Media Database and prepare it for conversion.
- 2 Submit the job.

All job steps must end with a condition code of 0.

Step 5: Prepare DFSMSrmm Control Dataset

- 1 Use the DFSMSrmm EDGUTIL utility to verify that the DFSMSrmm Control Dataset is correct.

Use the expression PARM='VERIFY (ALL)' for this purpose.

- 2 If the EDGUTIL utility detects errors, use the DFSMSrmm TSO ADD, CHANGE, DELETE, and LIST subcommands to update the information in the Control Dataset.

For more information about Control Dataset cleanup, see your DFSMSrmm documentation.

Step 6: Create the DFSMSrmm Extract File

- 1 Run the CONVREXT job to produce the DFSMSrmm Extract file that is used as input for the conversion process.

For more information, see “Creating an Extract Dataset” in the Performing Inventory Management chapter in the IBM manual *Implementing and Customizing DFSMSrmm*.

NOTE



If you use a different job to create the DFSMSrmm Extract file, be sure to use the Julian date format, by specifying DATEFORM(J) to utility EDGHSKP.

- 2 Submit job CONVREXT.

All steps must end with a condition code of 0.

Step 7: Convert the Extract File Into the Media Database

The CONVRMDB job converts the DFSMSrmm Extract file to the CONTROL-M/Tape Media Database.

- 1 The RMMEXT parameter is passed to the CONVRMM procedure in the CONVRMDB job. Modify this parameter in the // EXEC statement, which follows the // PEND statement, to reflect the name of the extract file created by the CONVREXT job.
- 2 RANGE statements for the conversion process are supplied through the DD statement SYSIN. These statements identify the volume ranges in use at your site. For each RANGE statement set the following parameters.

Table 32 Parameters for DD Statement SYSIN RANGE Statements

Parameter	Description
FIRST	First volume serial number.
LAST	Last volume serial number.
MEDIA	Volume media type.
VENDOR	Vendor (optional).

You can add or delete RANGE statements as required.



NOTE

Information in the DFSMSrmm Extract file about volumes that are not within the specified ranges is not converted to the Media Database.

For more information, see the description of the CTTDL utility with MODE set to CONVERT in the CONTROL-M/Tape chapter of the *INCONTROL for z/OS Utilities Guide*.

- 3 Verify that your changes are correct and submit the CONVRMDB job.

All job steps must end with a condition code of 0. If any of the job steps end with a non-zero condition code, check the messages in the job log to determine whether the conversion was performed satisfactorily.

Step 8: Define Vaults

- 1 Enter the CONTROL-M/Tape Vault Definition screen, which is option TV in the IOA Primary Option menu.
- 2 Create vault definitions for your vaults.

You must create vault definitions for the LOCAL, REMOTE and DISTANT locations defined in DFSMSrmm.



NOTE

If you changed the names of these vaults through conversion parameters specified in Step 1 above, specify vault names that are the same as those defined in that step.

- 3 In DFSMSrmm, slot management is active for all locations (that is, all locations are assigned a cell count and every vaulted volume is assigned a slot number). In CONTROL-M/Tape, slot management is active for a vault only if you define a capacity for the media types in the vault. Define a capacity for the media types in vaults where you want slot management to be active.

Step 9: Define Scratch Pools

If you do not intend to use scratch pools, skip this step and proceed to “[Step 10: Convert the VRS into Rules.](#)”

- 1 Enter the CONTROL-M/Tape Pool Definition screen by specifying the TP option in the IOA Primary Option menu.
- 2 Create CONTROL-M/Tape pools that reflect your tape management policies.

The pools must be created in accordance with the DFSMSrmm pools, as defined in member EDGRMMxx in the SYS1.PARMLIB library.

Step 10: Convert the VRS into Rules

- 1 Run the CONVRRLS job to convert the DFSMSrmm VRS record into CONTROL-M/Tape's rules.
- 2 Submit job CONVRRLS.

All steps must end with a condition code of 0.

- 3 Enter the CONTROL-M/Tape Rule Definition screen by specifying the TR option in the IOA Primary Option menu, and make sure that the job created the correct CONTROL-M/Tape rules that reflect your tape management policies.

The rules must be created according to DFSMSrmm Vital Records and Exit EDGUX100 Policies, and must have the same retention specification and vaulting definitions as defined in DFSMSrmm through these Vital Records and Policies.

NOTE



If you want to use scratch pools, the created rules must reflect this, and the rules must assign created datasets to the pools defined in “[Step 9: Define Scratch Pools.](#)”

- 4 If an External Data Manager (EDM) is used at your site (for example, DFSMSHsm, then the EDM rules were created with Permanent retention (DO RETENTION=PERMANENT) by the conversion job, and you must change it manually to EDM (DO RETENTION=EDM).



NOTE

BMC Software also recommends that you review the DEFEXPDT and EXPDTYPE parameters in the CTTARM member before you continue. Standard DFSMSrmm processing does not include special EXPDT support, so you must include the EXPDTYPE=NONE expression in the CTTARM member. However, if you implemented special EXPDT support by using DFSMSrmm exits or ACS routines, modify the DEFEXPDT parameter as necessary.

Step 11: Adjust Rule List

In previous steps, new rules were created. In this step, you specify the names of the tables containing these rules in the Rule List member (RULLIST) of the CONTROL-M/Tape PARM library. The RULLIST member is used to determine which rules are loaded when CONTROL-M/Tape is activated. Access the sample Rule List member and enter a new line in the table for each of these names, using the format of the existing rules. The asterisk (*) in column one of each line is part of the specification syntax of rule member names. For additional information, see the organization and administration chapter of the *CONTROL-M/Tape User Guide*.

Step 12: Apply Vault Rules

- 1 Run the CONVVTM job to apply the vault rules, created in “Step 10: Convert the VRS into Rules,” to existing (converted) volumes.

This job runs CONTROL-M/Tape utility CTTVTM in a special mode designed for the conversion process. For more information, see the description of the CTTVTM utility in the CONTROL-M/Tape chapter of the *INCONTROL for z/OS Utilities Guide*.

- 2 Submit the job.

All job steps must end with a condition code of 0. If any of the job steps end with a non-zero condition code, check the messages in the job log to determine whether vault management rules were applied satisfactorily.

- 3 Check the output of the job.
- 4 The Distribution report should indicate that volumes were not moved between locations (vaults). If this is not so, the vaulting rules do not function in accordance with DFSMSrmm Vital Records. Locate these rules, correct the problems, and restart the conversion.



NOTE

The Distribution report may indicate volume movement within a vault, for example, a volume moving from one slot in a vault to another slot in the same vault. This situation is normal, and it reflects differences in slot management between DFSMSrmm and CONTROL-M/Tape, not movement of volumes between locations.

Step 13: Apply Retention Rules

- 1 Run the CONVTRTM job to apply the retention rules created in “Step 10: Convert the VRS into Rules.”

This job runs the CONTROL-M/Tape utility CTTRTM in a special mode designed for the conversion process. For more information, see the description of the CTTRTM utility in the CONTROL-M/Tape chapter of the *INCONTROL for z/OS Utilities Guide*.

- 2 Submit the job.

This job must end with a condition code of 0. If the job ended with a nonzero condition code, check the messages in the job log to determine if retention management rules were properly applied.

Step 14: Verify Media Database Integrity

- 1 Run the CONVIDB job.

This utility runs the CTTIDB utility to verify the integrity of the Media Database.

- 2 If the CTTIDB utility reports errors, it may indicate logical problems in the input data of the conversion program. In this case, check and correct the original data in DFSMSrmm and repeat the conversion process.

For more information about the CTTIDB utility, see the chapter that discusses media database integrity verification in the *CONTROL-M/Tape Implementation Guide*, and the CONTROL-M/Tape chapter of the *INCONTROL for z/OS Utilities Guide*.



NOTE

You can also correct any problems directly in the CONTROL-M/Tape Media Database using the CTTMUP utility. However, such manual corrections are lost if tape management data is reconverted. For more information, see the description of the CTTMUP utility in the CONTROL-M/Tape chapter of the *INCONTROL for z/OS Utilities Guide*.

3 Submit the job.

All steps must end with a condition code of 0. If the any of the job steps end with a non-zero condition code, check the messages in the job log to determine if the job was performed satisfactorily.

Step 15: Check Problematic Datasets and Volumes

When the conversion program finds logical problems with data in the DFSMSrmm Extract file, it assigns a special dataset name to the problematic volumes. The name of the special dataset name is determined by the value of the DUMMYDS parameter, described in “[Step 1: Set Conversion Parameters](#)” on page 105.



NOTE

These problematic volumes indicate integrity problems within the DFSMSrmm database, not problems in the conversion program itself.

Use the following steps to display the names of the problematic volumes:

- 1 Enter the CONTROL-M/Tape Inquire/Update screen, which is option TI in the IOA Primary Option menu.
- 2 In the DSNNAME field on the Inquire/Update entry panel, specify the dataset name assigned to parameter DUMMYDS in Step 1 of the conversion process. If you have not changed the default, this is DUMMY.RMM.CONVERT.DATASET.
- 3 Enter Display type B and Record type DV in the DISPLAY TYPE and RECORD TYPE fields at the bottom of the screen.
- 4 Press **Enter**.

The names of the problematic volumes are displayed.

- 5 Check the DFSMSrmm database to determine the cause of the detected problems.

You can either correct the problems in DFSMSrmm and repeat the conversion, or you can correct the problems directly in the CONTROL-M/Tape Media Database using the CTTMUP utility. For more information on the CTTMUP utility, see the CONTROL-M/Tape chapter of the *INCONTROL for z/OS Utilities Guide*.



WARNING

Corrections made to the Media Database using the CTTMUP utility are lost if the Media Database is reformatted during a subsequent conversion.

Step 16: Resume Tape Activity

Resume Tape processing.

You can now start CONTROL-M/Tape.

Step 17: Collect Statistics for Stacking



NOTE

If you do not intend to activate the CONTROL-M/Tape Dynamic Dataset Stacking feature, skip this step and mark it as COMPLETE.

Run the CONVSTK job to collect dataset statistics from the CONTROL-M/Tape Media Database after it has been converted.

The statistical information is used by the CONTROL-M/Tape Dynamic Dataset Stacking facility. You must run this job with MODE set to MDB. For additional information, see the CTTSTK utility in the CONTROL-M/Tape chapter of the *INCONTROL for z/OS Utilities Guide*.

Conversion from MVS Catalog

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Overview

This chapter describes the process of generating tape management information for CONTROL-M/Tape at a site where no Tape Management System is being used. A brief description of tape management concepts is followed by detailed conversion steps.

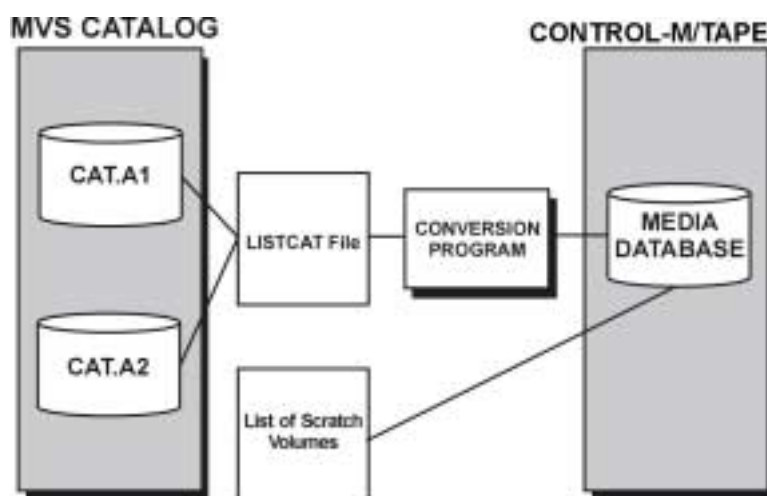
CONTROL-M/Tape volume and dataset information is stored in the CONTROL-M/Tape Media Database (MDB). The Media Database is composed primarily of dataset records and volume records. When a dataset is created, CONTROL-M/Tape records the dataset's attributes in a dataset record in the Media Database and updates the appropriate volume record. Dataset access is tracked in both records.

Each time a dataset is accessed or created, CONTROL-M/Tape searches for user defined rules that indicate action that must be taken. As CONTROL-M/Tape rules are processed, changes to media management attributes, for example, vault patterns and retention periods, are updated in the Media Database.

When conversion to CONTROL-M/Tape is performed at a site with no tape management system, the information in the MVS Catalogs is used to generate records for the CONTROL-M/Tape Media Database.

The following diagram illustrates how CONTROL-M/Tape tape management information is generated by the conversion tool:

Figure 16 Conversion of MVS Catalog to CONTROL-M/Tape



Catalog Cleanup

As described above, the conversion tool generates Media Database records from information in the MVS Catalogs. To avoid conversion of unnecessary information, it is recommended that you use the parameters of the conversion tool to filter MVS Catalog entries for the following:

- Device types to be handled by the conversion
- Volumes to be converted
- Extracting the Most Up-To-Date Information

The conversion tool automatically converts the most up-to-date information in the MVS Catalogs.

If multiple Catalog entries describing different datasets all indicate the same volume and label number, a CONTROL-M/Tape dataset record is created only for the last created dataset for that volume or label. Messages issued by the conversion tool describe the other (duplicate) Catalog entries that are ignored.

The conversion tool also ignores MVS Catalog entries for volume labels that are no longer valid.

For example, if an MVS Catalog contained two entries representing the first and second datasets on a volume, and the first dataset on that volume was recreated, the second dataset on the volume becomes obsolete since it is no longer accessible. The conversion process ignores the Catalog entry for this second dataset.

Volume Ranges

CONTROL-M/Tape requires definition of ranges of volume serial numbers (volsers) for each media type before it generates volume records. These volume ranges are defined using the CTTDLD utility during the conversion process.

Create an inventory of all active volume ranges in your data center. Use this inventory as a reference when specifying volume ranges to CONTROL-M/Tape during the conversion at [“Step 4: Convert LISTCAT Output to Media Database Records.”](#)



NOTE

Volumes in MVS Catalogs that are not within the ranges specified to CONTROL-M/Tape are not added to the CONTROL-M/Tape Media Database.

For more information about the CTTDLD utility, see the CONTROL-M/Tape chapter of the *INCONTROL for z/OS Utilities Guide*.

Retention Management

During conversion to CONTROL-M/Tape, you can indicate that datasets must be kept permanently or until their MVS Catalog entry is deleted.

NOTE



Datasets created with a specific expiration date (through JCL keywords RETPD or EXPDT), are assigned that specific expiration date, that is, instead of the retention type specified to the conversion tool.

Various other retention types can be specified for datasets after CONTROL-M/Tape implementation is complete. For more information about retention types, see DO RETENTION and DO ABENDRET in the rule parameters chapter of the *CONTROL-M/Tape User Guide*.

Rules, Pools and Vault Definitions

CONTROL-M/Tape includes a variety of tape management tools. For example:

- User defined rules can indicate actions that must be performed when a dataset is accessed or created.
- Pool definitions can be used to indicate volume ranges that must be treated as a logical group, for example, those that must be used for storage of datasets with a certain prefix.
- Vault definitions are used to indicate information about the various storage locations at your site, and which volumes must be stored in which locations.

Various utilities can be used for routine tasks, such as updating retention and vaulting information, as well as advanced tape management tasks, such as optimization of tape usage through stacking of existing datasets.

To maintain compatibility with your existing tape management methods, BMC Software recommends that you do not use these features until after CONTROL-M/Tape implementation is complete. When CONTROL-M/Tape is running in Global Production mode, that is, when implementation is complete, you can use these features to organize your tape library and to manage the library more efficiently.

For more information about CONTROL-M/Tape rule, pool and vault definitions, see online facilities chapter of the *CONTROL-M/Tape User Guide*.

External Data Managers (EDMs)

CONTROL-M/Tape tracks volumes that are managed by an EDM, for example, DFSMSHms or CA-Disk. If an EDM is present at your site, CONTROL-M/Tape rules must identify relevant datasets as EDM-controlled. These rules are defined through the CONTROL-M/Tape Online Rule Definition facility, which is described in the online facilities and rule parameters chapters of the *CONTROL-M/Tape User Guide*.

For more information, see “Step 8: Create CONTROL-M/Tape Rules” on page 128.

Reconversion of Tape Management Data

The conversion process may need to be performed more than once at your site.

Why Reconvert?

This is especially important if CONTROL-M/Tape was bypassed for certain tape management activities.

For example:

The EXPDT=98000 statement may have been included in the JCL, to bypass CONTROL-M/Tape processing for certain datasets.

CONTROL-M/Tape may have been stopped while certain tapes were processed.

When to Reconvert?

Reconversion is normally performed before CONTROL-M/Tape is to be activated in a different mode of operation.

If you are about to activate CONTROL-M/Tape in Global Phased mode (after operating in Global Test mode), it is highly recommended that you perform reconversion.

If you are about to activate CONTROL-M/Tape in Global Production mode (after operating in Global Phased mode).

What to Reconvert

Reconversion only requires the conversion steps that are used to reformat the CONTROL-M/Tape Media Database so that it is synchronized with the tape information in the MVS Catalogs.

NOTE



When the Media Database is reformatted, all information in the old Media Database is overwritten.

Conversion Process

The process of conversion from MVS CATALOG to CONTROL-M/Tape includes:

- Editing operations.
- Running conversion jobs.

The steps required for MVS CATALOG to CONTROL-M/Tape conversion are described in detail in the remainder of this chapter. The conversion steps are accessed through the INCONTROL Installation and Customization Engine (ICE).

Use the following steps to begin conversion from the MVS Catalogs to CONTROL-M/Tape.

- 1 Enter the ICE facility as described in the ICE chapter of the *INCONTROL for z/OS Installation Guide*.
- 2 Type **CTT** in the product field, select “INSTALL CTx” (ICE option 3) from the IOA installation menu, and press **Enter**. The CONTROL-M/Tape installation menu is displayed.

- 3 Choose major step 17 “Conversion from MVS Catalog.” The following screen is displayed:

Figure 17 ICE Screen for Converting MVS Catalog to CONTROL-M/Tape

```

----- Minor Steps Selection -----

Environment: IOA610      Product: CTT
Major Step: 17  Conversion from MVS CATALOG

Sel values: S Select step      C Mark step as completed      R Reset status
             B Browse Step      X Mark step as excluded      ? Help
PF7/PF8  To scroll through all Steps
-----
Sel  Step Status  Type  Opt Description
===  ===  =====  ===  =====
.    1           Extnl      Stop Tape Activity
.    2           Job        Format Media Database
.    3           Job        Produce LISTCAT Output
.    4           Job        Convert LISTCAT Output to the MDB
.    5           Job        Verify Media Database Integrity
.    6           Extnl      Define Vaults
.    7           Extnl      Y Define Scratch Pools
.    8           Extnl      Create CONTROL-M/Tape Rules
.    9           Extnl      R Adjust Rule List
.   10           Extnl      Y Add Scratch Volumes to the MDB
.   11           Extnl      Y Resume Tape Activity
-----> End of Minor Steps <-----

```

You can use ICE screens to check and record your progress during conversion, and to run some of the jobs performed during certain conversion steps.

If you are unfamiliar with ICE, BMC Software recommends that you review the ICE chapter in the *INCONTROL for z/OS Installation Guide*.

Procedure Table

The conversion process consists of the following operations and programs.

Table 33 Steps in the MVS Catalog Conversion Process (part 1 of 2)

Step	Operation	Job/Screen/ External Event	Relevant Program
1	Stop tape activity	External event	
2	Format Media Database	CONVFMDB	IOADBF
3	Produce LISTCAT output	CONVLIST	IDCAMS
4	Convert LISTCAT Output to the Media Database	CONVLCTL	CTTCTLG CTTDLD5 CTTBIX

Table 33 Steps in the MVS Catalog Conversion Process (part 2 of 2)

Step	Operation	Job/Screen/ External Event	Relevant Program
5	Verify Media Database integrity	CONVIDB	CTTIDB
6	Define vaults	Vault Definition screen	
7	Define Scratch pools	Pool Definition screen	
8	Create CONTROL-M/Tape rules	Rule Definition screen	
9	Adjust Rule list	Edit	
10	Add Scratch volumes to the Media Database	CTTDLD	CTTDLD5
11	Resume tape activity	External Event	

Step 1: Stop Tape Activity

- 1 Stop all tape activity.
- 2 If CONTROL-M/Tape is active, bring it down using the following command:

```
S CTTI NI T, PARM=' MODE=TERM'
```

Step 2: Format Media Database

If the CONTROL-M/Tape Media Database exists, run the CONVFMDB job to reformat it and remove all old data. If the Media Database does not exist, run the CTTCMDB job to allocate a new one.

All job steps must end with a condition code of 0.

Step 3: Produce LISTCAT Output

This step consists of the CONVLIST job, which extracts information from the MVS Catalogs so that other conversion steps can be use it. The IDCAMS LISTCAT service is used to retrieve the information.

NOTE



To perform a complete conversion, you must set the LISTCAT parameters in the SYSIN file to extract information from all the Catalogs of the system, including User and Master Catalogs.

- 1 Run the CONVLIST job to generate a sequential file that the CONVLCTL job (in “[Step 4: Convert LISTCAT Output to Media Database Records](#)”) uses to create CONTROL-M/Tape Media Database records.
- 2 Submit the CONVLIST job.

All steps must end with a condition code of 0.

Step 4: Convert LISTCAT Output to Media Database Records

1. Run the CONVLCTL job, which creates records for the CONTROL-M/Tape Media Database.

The input for this job is the dataset created by the CONVLIST job in “[Step 3: Produce LISTCAT Output](#).”

You must specify the following information for this job:

- the retention period for the converted datasets
- the device types to be handled
- the range of volumes to be converted

Retention of Converted Datasets

Use the RETTYPE parameter in the CONVLCTL job to specify the retention type that must be assigned in dataset records created by the conversion tool. [Table 34](#) describes the valid values.

Table 34 Retention Type Values for Parameters RETTYPE

Value	Description
P (Permanent)	Dataset is retained “indefinitely.” This retention type allows dataset or volume expiration to be done manually. This can be done using the EXPIRE option in the CONTROL-M/Tape Inquire/Update screen (TI).
C (Catalog)	Retention is based on the existence of the dataset in the MVS Catalog. If an MVS Catalog still controls the dataset, the dataset is retained by CONTROL-M/Tape. Otherwise, the dataset is expired by CONTROL-M/Tape.

NOTE



If a dataset was originally created with a specific expiration date, using the RETPD or EXPDT JCL keywords, that specific expiration date overrides the RETTYPE parameter.

Device Types

Specify a list of device types to be supported by the conversion through the DD statement DADEVICE. At least one device type must be provided. All relevant esoteric device names must be added to this list.

NOTE



MVS Catalog entries that indicate a device that is not specified through the DD statement DADEVICE is not converted, and messages identifying these entries are issued by the conversion tool.

Specify each device type in the following format:

```
devtype-medname
```

where

- *devtype* is the device type, as it appears in the LISTCAT output file
This value can consist of any combination of alphanumeric characters. The mask character ? can also be specified as part of this value.
- *medname* is the name of the media type

NOTE



Each specified media name must match a media name specified in the CONTROL-M/Tape installation parameter CTTMEDDF.

Example

```
????8080-CART
```

This statement indicates that the conversion tool must handle all 3490 cartridges at the site.

Volume Ranges

Specify the ranges of volumes to be handled by the conversion tool through DD statement SYSIN. The following parameters (except VENDOR, which is optional) must be included in each range statement:

Table 35 Parameters for DD Statement SYSIN Statements

Parameter	Description
FIRST	First volume serial number.
LAST	Last volume serial number.
MEDIA	Volume's media type.
VENDOR	Media vendor (For example, IBM).

Volumes in the MVS Catalogs that are not within the ranges specified to the conversion tool are not added to the CONTROL-M/Tape Media Database.

For more information about converting volume information, see the CTTDLD utility (with MODE set to CONVERT) in the CONTROL-M/Tape chapter of the *INCONTROL for z/OS Utilities Guide*. A sample range statement is contained in the job stream of the CONVLCTL job.

Step 5: Verify Media Database Integrity

1 Run the CONVIDB job.

This utility runs the CTTIDB utility after the conversion to verify the integrity of the Media Database.

2 If the CTTIDB utility reports errors, it may indicate logical problems, such as corrupted Catalog entries, in the input data of the conversion program. If this occurs, check and correct the original data and repeat the conversion.

For more information about checking Media Database integrity, see the chapter that discusses media database integrity verification in the *CONTROL-M/Tape Implementation Guide*, and the CTTIDB utility in the CONTROL-M/Tape chapter of the *INCONTROL for z/OS Utilities Guide*.

NOTE



You can also correct the problems directly in the CONTROL-M/Tape Media Database. For more information, see the CTTMUP utility in the CONTROL-M/Tape chapter of the *INCONTROL for z/OS Utilities Guide*.

3 Submit job CONVIDB.

All steps must end with a condition code of 0.

Step 6: Define Vaults (Optional)

Use the CONTROL-M/Tape Vault Definition facility (option TV) to create vault definitions for the vaults (storage locations) at your site.

NOTE



You must define a capacity for each vault for which you want CONTROL-M/Tape slot management to be active.

For more information about vault definition in CONTROL-M/Tape, see the online facilities chapter and the organization and administration chapter of the *CONTROL-M/Tape User Guide*.

Step 7: Define Scratch Pools (Optional)

Use the CONTROL-M/Tape Pool Definition facility (screen TP) to define CONTROL-M/Tape pools that reflect your tape management policies.

For more information about online pool definitions, see the online facilities chapter of the *CONTROL-M/Tape User Guide*.

Step 8: Create CONTROL-M/Tape Rules

Use this step to create rules to identify all aspects of removable media management (for example, retention, vaulting, and pooling). BMC Software recommends that all rules be created in one rule table (member).

NOTE



If your site uses an External Data Manager such as DFSMSHsm or CA-Disk, you must create CONTROL-M/Tape rules to identify the relevant datasets as EDM-controlled. Each CONTROL-M/Tape rule used for this purpose must include a DO RETENTION=EDM statement.

For more information about CONTROL-M/Tape support for EDMs, see the CONTROL-M/Tape chapter of the *CONTROL-M/Tape Implementation Guide*.

For more information about CONTROL-M/Tape rules, see the online facilities, rule parameters, and organization and administration chapters of the *CONTROL-M/Tape User Guide*.

Step 9: Adjust Rule List

- 1 Verify that all CONTROL-M/Tape rule tables are listed in the RULLIST member of the CONTROL-M/Tape PARM library.

This member indicates the names of the rule tables that must be loaded when CONTROL-M/Tape is activated.

- 2 Edit the RULLIST sample member, entering a new line in the table for each new rule table.

Use the format of the existing rule tables. The asterisk (*) in column one of each line is part of the required syntax of rule member names.

For more information about the rule list member, see the organization and administration chapter of the *CONTROL-M/Tape User Guide*.

Step 10: Add Scratch Volumes to the Media Database



NOTE

Scratch volumes are not listed in the MVS Catalog.

- 1 Add scratch volumes that are to be defined in CONTROL-M/Tape to the CONTROL-M/Tape Media Database.
- 2 If you are cannot determine the volsers or volume ranges of the scratch volumes at your site, you can add records for the scratch volumes as follows:

- A. Open the ADDVOLS sample member in the CONTROL-M/Tape JCL library.

This job invokes the CTTDL utility to add new volume records to the CONTROL-M/Tape Media Database.

- B. Specify all volume ranges being converted to CONTROL-M/Tape, including active volumes.

- C. Run the job.

The CTTDL utility generates a message for each volume record that is added to the Media Database as a result of this run. This job does not create volume records for volumes already defined in the Media Database, that is, active volumes.

For more information, refer to the CTTDLD utility in the CONTROL-M/Tape chapter of the *INCONTROL for z/OS Utilities Guide*.

Step 11: Resume Tape Activity

You can now resume tape activity.

- 1 Start CONTROL-M/Tape using the following command.

```
S CTTI NI T, PARM=' MODE=I NI T'
```

- 2 If other tape processing was also stopped, restart it at this time.

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